SAMSUNG

SYSTEM AIRCONDITIONER

	INDOOR UNIT	OUTDOOR UNIT
Basic:	FC36BTVA	FC36BTVX

Model :	NS036DCRCA	RC036FCRCA
	NS048DCRCA	RC048FCRCA
	NS060DCRCA	RC060FCRCA
Model Code :	NS036DCRCA	RC036FCRCA
	NS048DCRCA	RC048FCRCA
	NS060DCRCA	RC060FCRCA

SERVICE Manual

AIR CONDITIONER

THE FEATURE OF PRODUCT

- New design, more modern and elegant appearance.
- Convenient installation
- Easy operation.
- Low noise level plus compact size

For more information, Please access to our service web site (http://itself.sec.samsung.co.kr)

Contents

1. Precautions 1-1

1-1 Installing the air conditioner 1-1

1-2 Power supply and circuit breaker 1-1

1-3 During operation 1-1

1-4 Disposing of the unit 1-2

1-5 Others 1-2

2. Product Specifications 2-1

2-1 The Feature of Product 2-1

2-2 Name of Each Part 2-2

2-3 Product Specifications 2-4

2-4 Accessory and Option Specifications 2-6

3. Alignment and Adjustments 3-1

3-1 Test operation for adjustment 3-1

4. Disassembly and Reassembly 4-1

4-1 Indoor Unit 4-1

4-2 Outdoor Unit 4-4

5. Exploded Views and Parts List 5-1

5-1 Indoor Unit 5-1

5-2 Outdoor Unit 5-5

6. Electrical Parts List 6-1

7. Wiring Diagram 7-1

7-1 Indoor Unit 7-1

7-2 Outdoor Unit 7-2

8. Schematic Diagram 8-1

8-1 Indoor Unit 8-1

8-2 Outdoor Unit 8-2

Contents

9. Refrigerating Cycle Diagram 9-1

9-1 Refrigerating Cycle Diagram 9-1

10. PCB Diagram 10-1

10-1 Indoor Unit 10-1

10-2 Outdoor Unit 10-3

11. Operating Instruction and Installation 11-1

11-1 Operating Modes and Function 11-1

11-2 Thermostat controler 11-3

12. Troubleshooting 12-1

12-1 Self-diagnosis 12-1

12-2 Solving Steps for Typical Malfunction 12-2

12-3 Servicing and Maintenace 12-4

12-4 Appendix 12-5

13. Block Diagram 13-1

13-1 Indoor Unit 13-1

13-2 Outdoor Unit 13-1

14. Reference Sheet 14-1

14-1 Index for Model Name 14-1

14-2 Pressure & Capacity mark 14-2

14-3 The abbreviated technology words & the definition of technology terms 14-2

14-4 Installation 14-3

1. Precautions

1-1 Installing the air conditioner

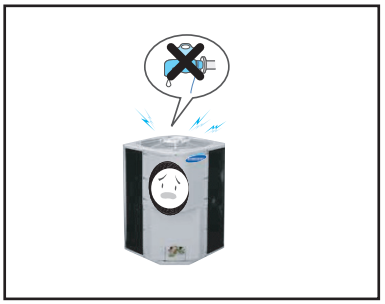
- Users should not install the air conditioner by themselves.
  Ask the dealer or authorized company to install the air conditioner except the window-type air conditioner in U.S.A and Canada.
- If you don't install the air conditioner properly, it may cause a fire, a water leakage or an electric shock.
- You must install the air conditioner according to the national wiring regulations and safety regulations.
- Install the indoor unit higher than 2.5m from the floor to avoid the injury caused by the operation of the fan.
  (except the window-type air conditioner)
- The manufacturer is not responsible for any accidents or injury caused by an incorrect installation.
- When installing the built-in type air conditioner, keep all electric cables such as the power cable and the connection cord in pipes, ducts, or cable channels to protect them from the danger of impact or any other incidents.

1-2 Power supply and circuit breaker

- If the power cord of the air conditioner is damaged, it must be replaced by the manufacturer or a qualified person in order to avoid a hazard.
- The air conditioner must be plugged into an independent circuit if applicable or connect the power cable to the auxiliary circuit breaker.
  An all pole disconnection from the power supply must be incorporated in the fixed wiring with a contact opening of >3mm.
- Do not extend an electric cord to the air conditioner.
- The air conditioner must be plugged in after you complete the installation.

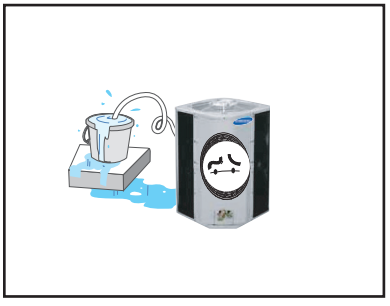
1-3 During operation

- Do not repair the air conditioner at your discretion.
  It is recommended to contact a service center directly.



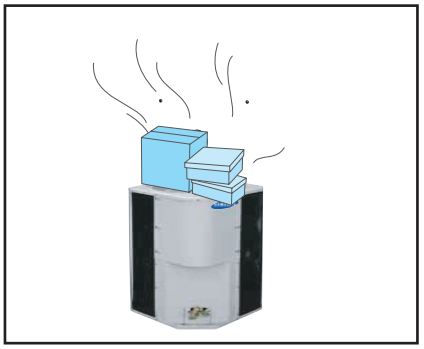
- Never spill any kind of liquid on the air conditioner.
  If this happens, turn off the air conditioner and contact an authorized service center.

- Do not spray any kind of liquid into the indoor unit. If this happens, turn off the air conditioner and contact a service center.

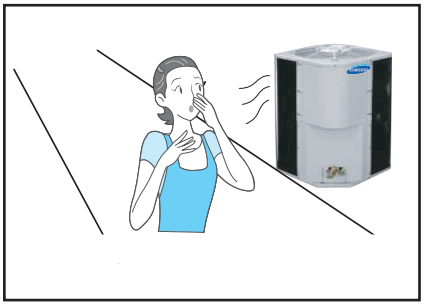


1-3 During operation(cont.)

- Do not place any obstacles top of the air conditioner.

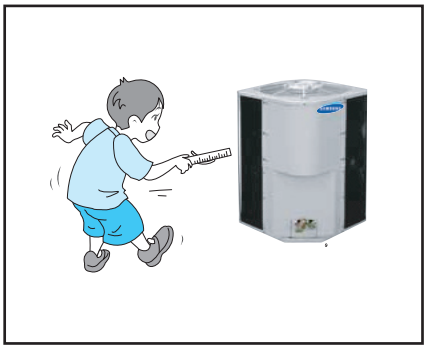


- Make sure that the air conditioner is well ventilated at all times:
  Do not place a cloth or other materials over it.



- Do not insert anything between the airflow blades to prevent damage of the inner fan and consequent injury.
  Keep children away from the air conditioner.

- Remove the batteries if you don't use the remote control for a long time. (If applicable)
- Use the remote control within 7 meters from the indoor unit. (If applicable)



1-4 Disposing of the unit

- When you dispose of the air conditioner, consult your dealer. If pipes are removed incorrectly, refrigerant may blow out and cause air pollution. When it contacts with your skin, it can cause skin injury.
- The package of the air conditioner should be recycled or disposed of properly for environmental reasons.

1-5 Others

- Never store or load the air conditioner upside down or sideways to prevent the damage to the compressor.
- Young children or infirm persons should be always supervised when they use the air conditioner.
- Max current is measured according to IEC standard for safety.
- Current is measured according to ISO standard for energy efficiency.

2. Product Specifications

2-1 TheFeature of Product

Cabinet
That solid and galvanized steel construction, easy transport and installation, fully insulated and easy cleaning helps to create a long run and healthy environment.

Motor
The high-efficiency motor performs durably. `

Coil
“A” style coil is adopting long-life rifled copper tubes, aluminum fin refrigerant coils, which helps to enhance heat exchanger.

Filter
Factory installed filter can be cleaned and reinstalled for air filtration.

Drainage
Enhancing primary and second drainage design allows complete drainage to improve in-house air quality.

Throttle device
Using a changeable and durable piston as throttle device can guarantee the system operates reliably.

Protection
Factory installed coil temperature sensor providing effective protection of the system.

Application
Multiple airflow positions design, which includes up-flow, horizontal, enables an extensive share of the air exchanged.

Performance

This series is designed and tested by ARI standard.

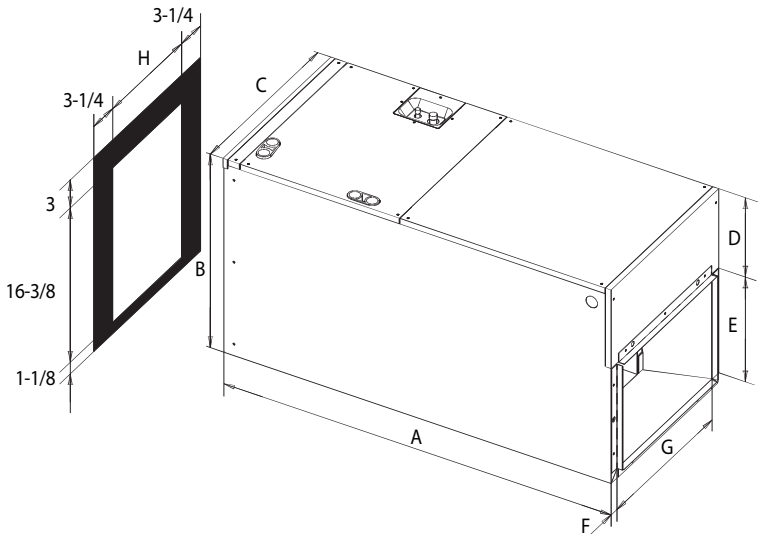
2-2 Name of Each Part

2-2-1 IndoorUnit

(Unit : mm)

NS036DCRCA, NS048DCRCA, NS060DCRCA

Dimensions and Duct Sizes

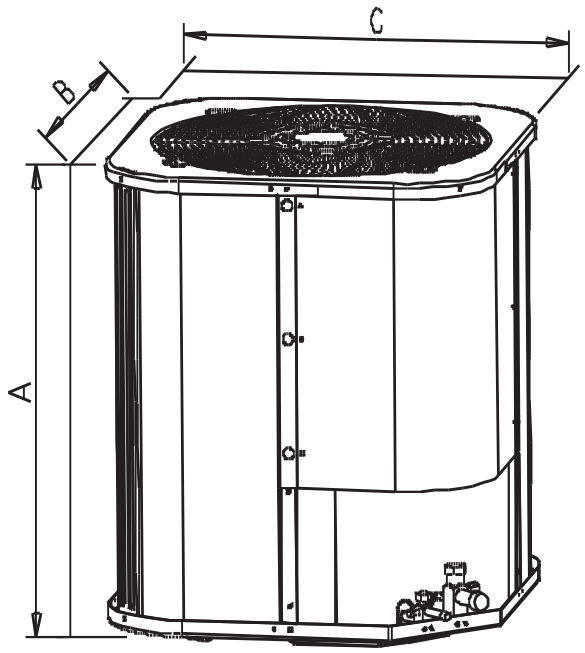


Model	Dimensions(inc es)							
	A(Height)	B(Depth)	C(Width)	D	E	F	G	H
NS036DCRCA	39-3/8	20-1/2	21-1/4	18-1/8	h	1	16-1/8	11-5/8
NS048DCRCA	47-1/4			8-1/4	11-1/4		19-1/4	14-2/5
NS060DCRCA								

2-2-2 Outdoor units

(Unit : mm)

Unit Model	Dimensions (mm)			Refrigerant Connection Line Size(mm)	
	A	B	C	Liquid(Ø)	Vapor(Ø)
RC036FCRCA	840	554	554	12.7	19
RC048FCRCA	852	740	740	12.7	19
RC060FCRCA	852	740	740	12.7	19



2-3 Product Specifications

Model			RC036FCRCA	RC048FCRCA	RC060FCRCA
Power supply		V-Ph-Hz	208~230- 60-1	208~230- 60-1	208~230- 60-1
Cooling	Capacity	Btu/h	32000	48000	52000
	Input	W	3900	4680	5500
	Rated current	A	18.9	22.3	25.6
	EER	Btu/w.h	6.2	8.1	7.4
Heating	Capacity	Btu/h	\	\	\
	Input	W	\	\	\
	Rated current	A	\	\	\
	COP	Btu/w.h	\	\	\
Max. input consumption		W	5180	5700	6950
Max. current		A	28	32	39
Starting current		A	130	141	149
Compressor	Model		C-SB261H6A	C-SB301H6B	C-SB351H6A
	Type		scroll	scroll	scroll
	Brand		SANYO	SANYO	SANYO
	Supplier		SANYO	SANYO	SANYO
	Capacity	Btu/h	40600	49000	57000
	Input	W	3850	4550	5390
	Rated current(RLA)	A	16.7	21.7	24.4
	Locked rotor Amp (LRA)	A	130	141	149
	Thermal protector		130	130	130
	Capacitor	uF	50	50	70
	Refrigerant oil	ml	1700	1700	1700
Outdoor fan motor	Model		YDK80-6M-1	YDK165-6M	YDK165-6M
	Input	W	172	336	336
	Capacitor	uF	6	12	12
	Speed	r/min	920	880	880
Outdoor coil	Number of rows		1	1	1
	Tube pitch(a)	mm	25.4	25.4	25.4
		inch	1	1	1
	Fins per inch		14	14	14
	Fin type (code)		unhydrophilic aluminum	unhydrophilic aluminum	unhydrophilic aluminum
	Tube outside dia.and type	mm/inch	9.52/ 3/8	9.52/ 3/8	9.52/ 3/8
			inner groove tube	inner groove tube	inner groove tube
	Coil length x height x width	mm	531X531X813	713X713X813	713X713X813
		inch	20-7/8 X20-7/8 X32	20-7/8 X20-7/8 X32	20-7/8 X20-7/8 X32
	Number of circuits		6	6	6
Outdoor air flow		m^3/h	3300	4900	4900
		CFM	1940	2881	2881
Outdoor noise level		dB(A)	62	65	66
Dimension	Body(W*H*D)	mm	554X554X840	740X852X740	740X852X740
		inch	21-7/8 X21-7/8 X33-1/8	29-1/8 X33-1/2 X29-1/8	29-1/8 X33-1/2 X29-1/8
	Packing (W*H*D)	mm	582X582X873	770x770x890	770x770x890
		inch	22-7/8 X22-7/8 X34-3/8	30-3/8 X30-3/8 X35	30-3/8 X30-3/8 X35
Net/Gross weight		lbs	165/171.6	202.4/213.4	193.6/204.6
		Kg	75/78	92/97	88/93
Refrigerant type		g	R22/1850	R22/3000	R22/3300
Design pressure		MPa	2.8	2.8	2.8
Refrigerant piping	Liquid side/ Gas side	mm	φ12.7/φ19	φ12.7/φ19	φ12.7/φ19
		inch	1/2 / 3/4	1/2 / 3/4	1/2 / 3/4
Ambient temp		℃	—7～45	—7～45	—7～45
Application area		m^2	42～70	56～93	64～100
stuffing Qty (20'/40'/40HQ)		pieces	80/160/238	42/90/133	42/90/133

Model code(Indoor)			NS036DCRCA	NS048DCRCA	NS060DCRCA
Power supply		V-Ph-Hz	208-230V ~ 60Hz, 1Ph	208-230V ~ 60Hz, 1Ph	208-230V ~ 60Hz, 1Ph
Cooling Capacity		Btu/h	34,500	48,000	55,500
Max. input consumption		W	5180	5700	6950
Max. current		A	28	32	39
Starting current		A	30	35	42
Indoor fan motor	Model		YDK200-6X	YDK250-6X	YDK300-6X
	Type		AC Motor	AC Motor	AC Motor
	Brand		YongAn	YongAn	YongAn
	Input	W	495	500	655
	Capacitor	uF	10	12	12
	Speed(hi/mi/lo)	r/min	820/650	800/720	980/750
Indoor coil	a.Number of rows		3	3	3
	b.Tube pitch(a)x row pitch(b)	mm	25.4×22	25.4×22	25.4×22
	c.Fin spacing	mm	1.8	1.8	1.8
	d.Fin type (code)		Hydrophilic aluminium	Hydrophilic aluminium	Hydrophilic aluminium
	e.Tube outside dia.and type	mm	φ9.52	φ9.52	φ9.52
			innergroove tube	innergroove tube	innergroove tube
	f.Coil length x height x width	mm	415x356x66	415x457x66	415x508x66
	g.Number of circuits		6	6	6
Indoor air flow (Hi/Mi/Lo)		m3/h	2000/1530	2400/2100	2900/2180
Indoor external static pressure (Hi)		Pa	50	100	100
Indoor noise level (Hi/Lo)		dB(A)	54.4/50.8	52.6/50.1	56.9/51.3
Indoor unit	Dimension (W*H*D)	mm	460x1000x520	540x1200x520	540x1200x520
	Packing (W*H*D)	mm	515x1055x575	595x1255x575	595x1255x575
	Net/Gross weight	Kg	51/56	61/66	65/70
Refrigerant type		g	R22	R22	R22
Throttle type			indoor side piston	indoor side piston	indoor side piston
Design pressure		MPa	2.8/1.2	2.8/1.2	2.8/1.2
Refrigerant piping	Liquid side/ Gas side	mm	φ12.7/φ19	φ12.7/φ19	φ12.7/φ19
	Max. refrigerant pipe length	m	30	30	30
	Max. difference in level	m	10	10	10
Connection wiring	Power wiring	mm2	3*1.0	3*1.0	3*1.0
	Signal wiring	mm2	6*1.0	6*1.0	6*1.0
Controller			remote controller	remote controller	remote controller
Operation temp		℃	17-30	17-30	17-30
Ambient temp		℃	T1	T1	T1
Application area		m2	42	56	70

Notes:

1. Nominal cooling capacities are based on the following conditions:
   Indoor temp: 27°CDB, 19°CWB; Outdoor temp: 35°CDB; Equivalent ref. Piping: 5m(horizontal)
2. Nominal heating capacities are based on the following conditions:
   Indoor temp: 20°CDB; Outdoor temp: 7°CDB, 6°CWB; Equivalent ref. Piping: 5m(horizontal)
3. Actual noise level may differ, depending on the room structure, etc, since these noise values are from an anechoic room.

2-4 Accessory and Option Specifications

2-4-1 Accessories

Item	Descriptions	Q'TY	Remark
	Owner's manual	1	Indoor Unit
	Installation manual	1	

Cautions on Controller Installation

Choose Non-programmed electrical thermostat series of Honeywell, such as Th5220D.

Note ***The thermostat controller is not supplied with the air conditioner.***

3. Alignmentand Adjustments

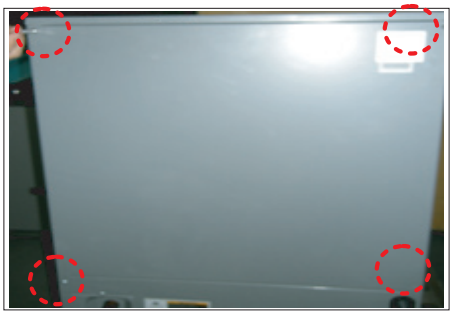
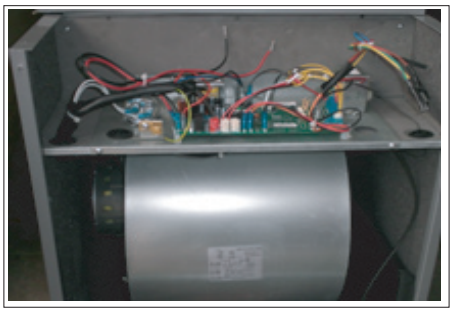
3-1. Test operation for adjustment

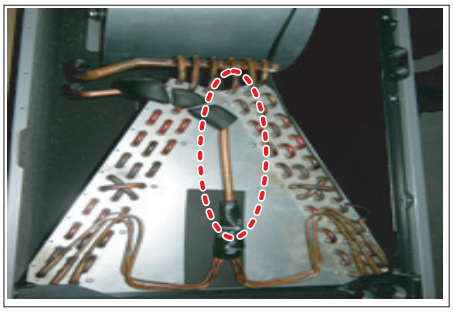
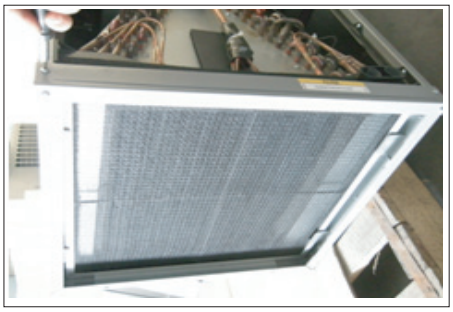
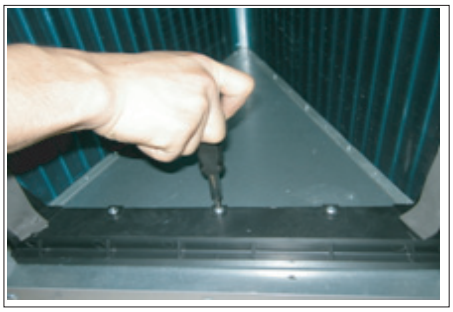
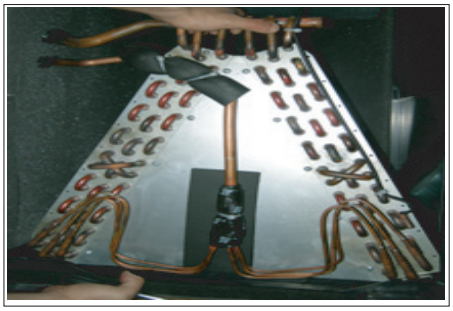
(1) The test operation must be carried out after the entire installation has been completed.
(2) Please confirm the following points before the test operation.
The indoor unit and outdoor unit are installed properly.
Tubing and wiring are correctly completed.
The refrigerant pipe system is leakage-checked.
The drainage is unimpeded.
The ground wiring is connected correctly.
The length of the tubing and the added stow capacity of the refrigerant have been recoded
The power voltage fits the rated voltage of the air conditioner.
There is no obstacle at the outlet and inlet of the outdoor and indoor units.
The gas-side and liquid-side stop values are both opened.
The air conditioner is pre-heated by turning on the power.
(3) According to the user's requirement, install the controller
(4) Test operation
Indoor unit
Whether the switch on the controller works well.
Whether the buttons on the controller works well.
Whether the air flow is normally.
Whether the room temperature is adjusted well.
Whether the indicator lights normally.
Whether the drainage is normal.
Whether there is vibration or abnormal noise during operation.

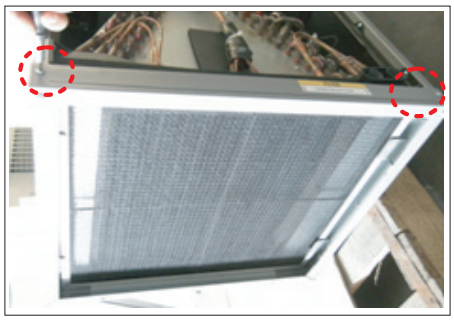
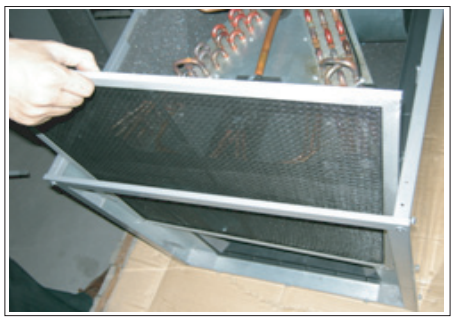
4. Disassembly and Reassembly

Stop operation of the air conditioner and remove the power cord before repairing the unit.

4-1 Indoor Unit (NS036DCRCA, NS048DCRCA, NS060DCRCA)

No	Parts	Procedure	Remark
1	Electrical Part	1) Loosen the 4 screws, open the front cover	
		2) Loosen the 5 screws, open the top cover	
		3) Move the front and top cover ⚠ Be careful cut off power supply before you move the cove	

No	Parts	Procedure	Remark
2	Evaporator	1) Loosen screws, open the cover	
		2) Move the front cover ⚠ Be careful don't destroy the connective pipe	
		3) Loosen screws and Move the sheet metal, then take out the filter. The operation instruction please refer to filter disassembly step	
		4) Loosen screws and take out the evaporator ⚠ Be careful your hand	 

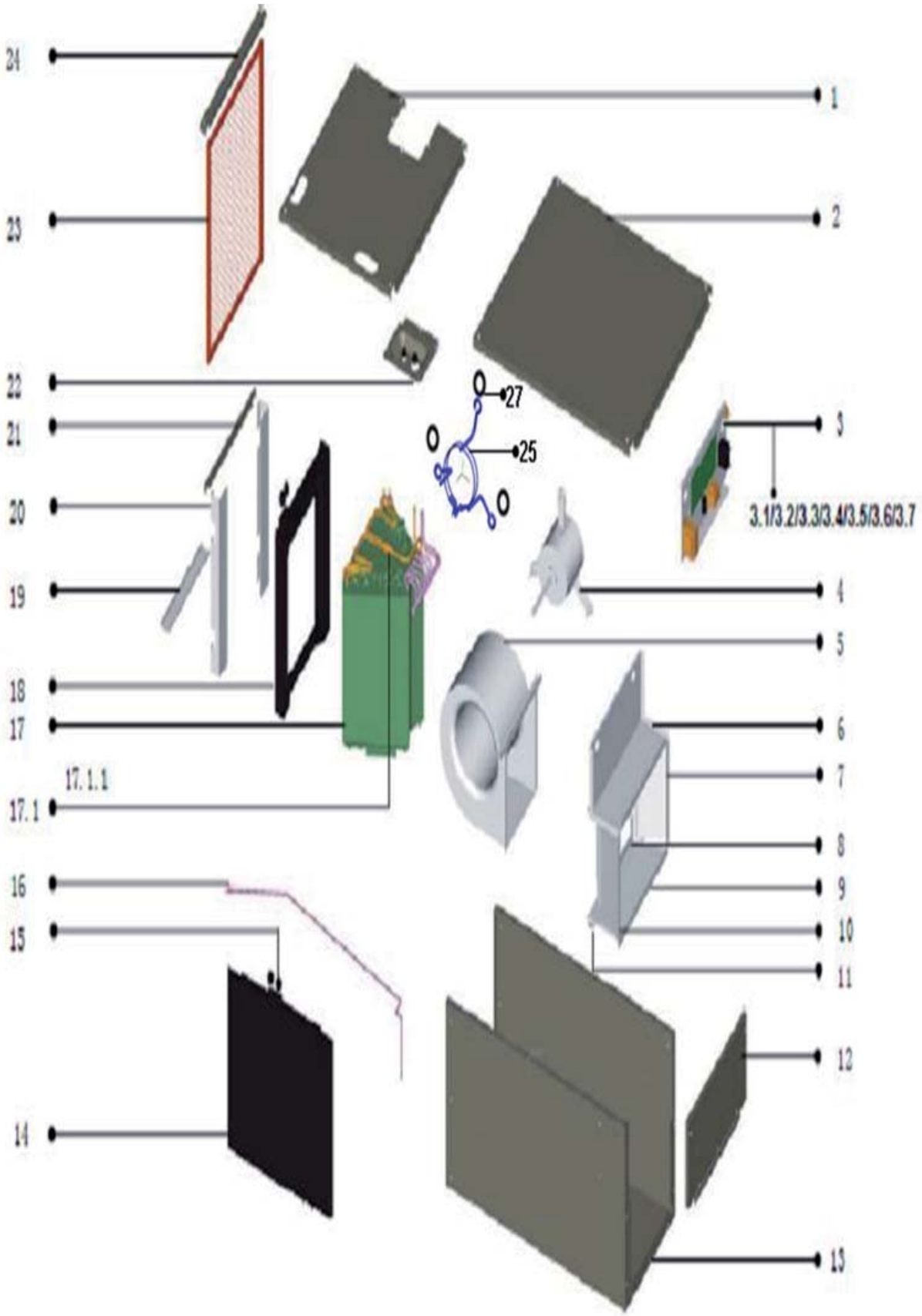
No	Parts	Procedure	Remark
3	Filter	1) Loosen the 2 screws	
		2) Move the sheet metal	
		3) Take out the filter	
		4) You can wash it and reassembly	

4-2 Outdoor Unit (RC036FCRCA, RC048FCRCA, RC060FCRCA)

No	Parts	Procedure	Remark
1	Cabinet	1) Turn off the unit and remove the Power Cable. 2) Detach the Top Cover. 3) Detach the Control Box Cover. 4) Unplug the Ass'y Cable. 5) Detach the Cabi-Side. 6) Detach the Cabi-Front. ⚠ When you assemble the parts, check the each parts and component Electric Box are fixed firmly.	
2	Fan Motor & Propeller Fan	1) Loosen the indicating bolt screw. 2) Disassemble the Propeller Fan.	

5. EXPLODED VIEWS AND PARTS LIST

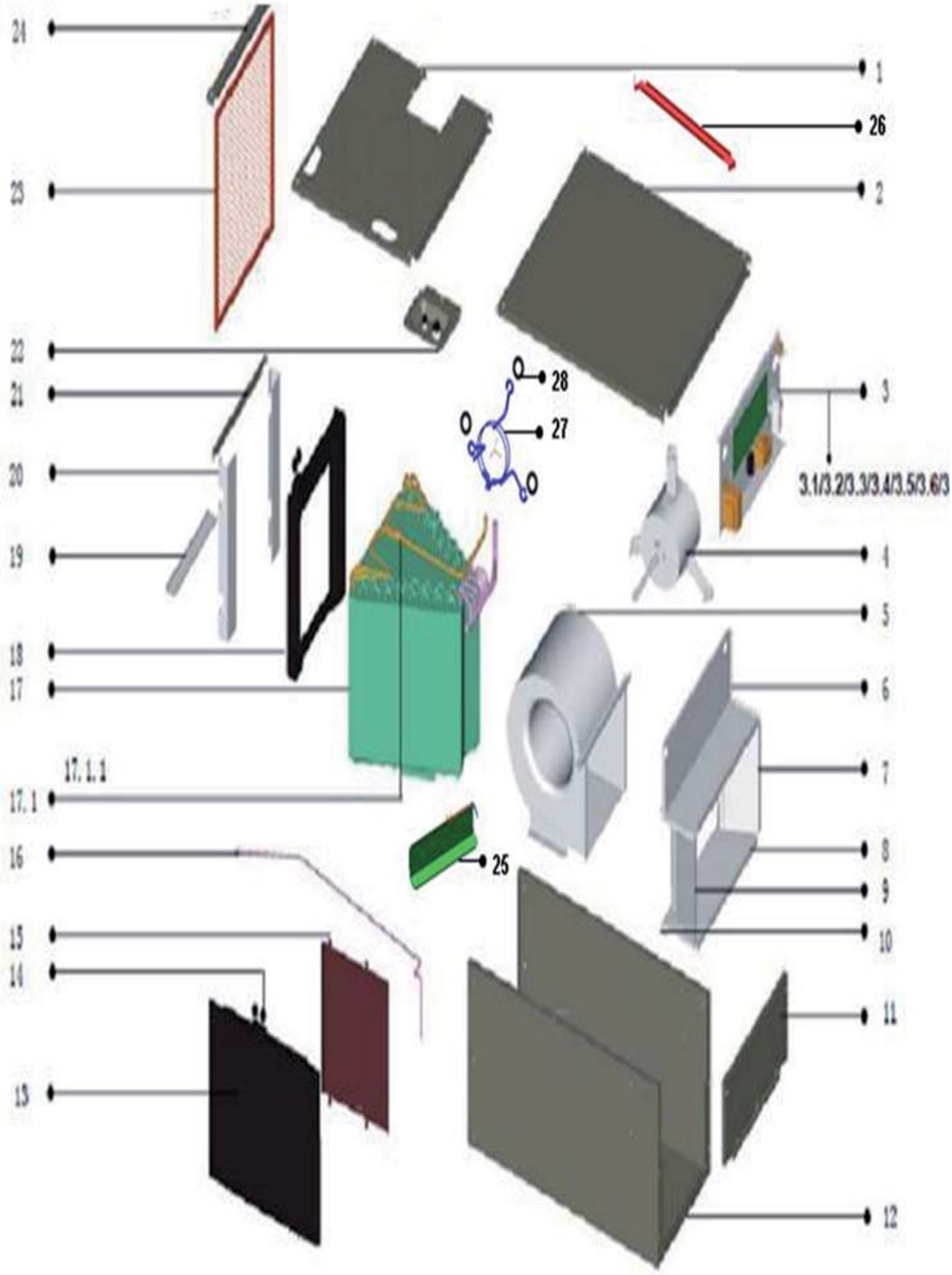
5-1 INDOOR UNIT (NS036DCRCA)



- PART LIST

No.	Part Name	OEM code	Quantity	SA/SNA
1	A/S ASSY-UNDERSIDE BOARD	DB82-01037A	1	SA
2	A/S ASSY-UPSIDE BOARD	DB82-01038A	1	SA
3	A/S ASSY-ELECTRONIC CONTROL BOX	DB82-01039A	1	SA
3.1	AS-POLE	DB81-02386A	4	SA
3.2	A/S ASSY-MAIN CONTROL BOARD	DB82-01028A	1	SA
3.3	AS-24V AC TRANSFORMER	DB81-02364A	1	SA
3.4	AS-TRANSFORMER	DB81-02365A	1	SA
3.5	AS-GROUNDING TERMINAL	DB81-02366A	1	SA
3.6	AS-WIRE JOINT	DB81-02367A	1	SA
3.7	AS-FAN MOTOR CAPACITOR	DB81-02387A	1	SA
4	AS-ASYNCHRONOUS MOTOR	DB81-02388A	1	SA
5	A/S ASSY-FAN	DB82-01040A	1	SA
6	AS-TOP WIND BAFFLE BOARD	DB81-02389A	1	SA
7	AS-LEFT WIND BAFFLE BOARD	DB81-02390A	1	SA
8	AS-WIND BAFFLE BOARD	DB81-02391A	1	SA
9	AS-BOTTOM WIND BAFFLE BOARD	DB81-02392A	1	SA
10	AS-RIGHT WIND BAFFLE BOARD	DB81-02393A	1	SA
11	AS-SUPPORTER OF AIR PASSAGE	DB81-02394A	1	SA
12	A/S ASSY-UP FRONT BOARD	DB82-01041A	1	SA
13	A/S ASSY-CHASSIS	DB82-01042A	1	SA
14	AS-WATER COLLECTOR	DB81-02395A	1	SA
15	AS-SEAL STOPPER	DB81-02368A	4	SA
16	A/S ASSY-PIPE TEMPERATURE SENSOR	DB82-01029A	1	SA
17	A/S ASSY-EVAPORATOR	DB82-01043A	1	SA
17.1	A/S ASSY-INPUT PIPE	DB82-01044A	1	SA
17.1.1	AS-THROTTLE DISTRIBUTOR	DB81-02396A	1	SA
18	AS-WATER COLLECTOR	DB81-02397A	1	SA
19	AS-FIX BOARD OF WATER COLLECTOR	DB81-02369A	1	SA
20	AS-SUPPORTER OF WATER COLLECTOR	DB81-02370A	2	SA
21	AS-UNDERSIDE SUPPORTING BOARD	DB81-02398A	1	SA
22	A/S ASSY-COVER BOARD	DB82-01030A	1	SA
23	AS-AIR FILTER	DB81-02399A	1	SA
24	AS-AIR FILTER SHUTTER	DB81-02400A	1	SA

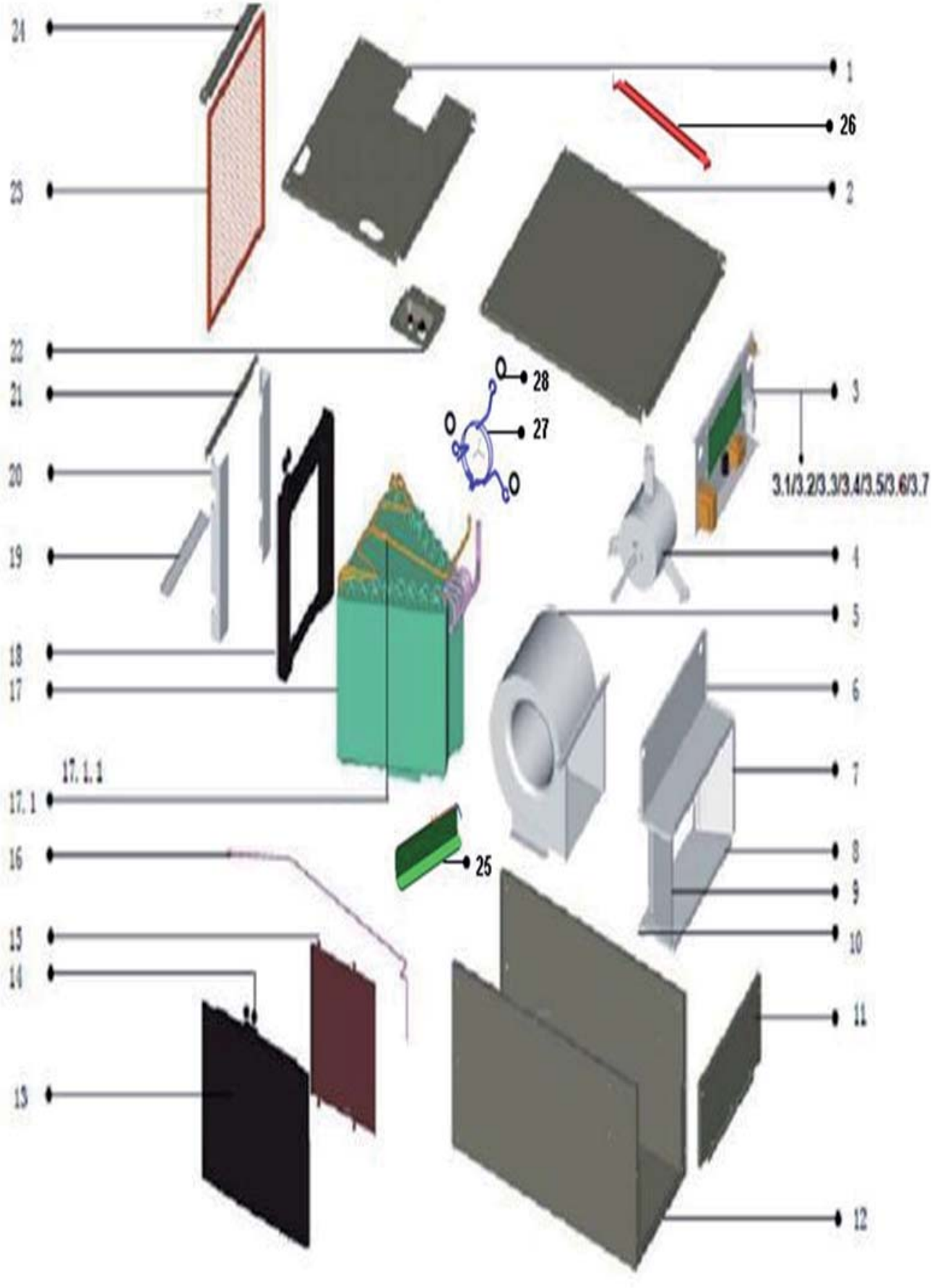
5-1 INDOOR UNIT (NS048DCRCA)



- PART LIST

No.	Part Name	OEM code	Quantity	SA/SNA
1	A/S ASSY-UNDERSIDE BOARD	DB82-01031A	1	SA
2	A/S ASSY-UPSIDE BOARD	DB82-01032A	1	SA
3	A/S ASSY-ELECTRONIC CONTROL BOX	DB82-01033A	1	SA
3.1	AS-POLE	DB81-02371A	4	SA
3.2	A/S ASSY-MAIN CONTROL BOARD	DB82-01028A	1	SA
3.3	AS-24V AC TRANSFORMER	DB81-02364A	1	SA
3.4	AS-TRANSFORMER	DB81-02365A	1	SA
3.5	AS-GROUNDING TERMINAL	DB81-02366A	1	SA
3.6	AS-WIRE JOINT	DB81-02367A	1	SA
3.7	AS-COMPRESSOR CAPACITOR	DB81-02372A	1	SA
4	AS-ASYNCHRONOUS MOTOR	DB81-02401A	1	SA
5	A/S ASSY-FAN	DB82-01034A	1	SA
6	AS-TOP WIND BAFFLE BOARD	DB81-02373A	1	SA
7	AS-LEFT WIND BAFFLE BOARD	DB81-02374A	1	SA
8	AS-BOTTOM WIND BAFFLE BOARD	DB81-02375A	1	SA
9	AS-RIGHT WIND BAFFLE BOARD	DB81-02377A	1	SA
10	AS-SUPPORTER OF AIR PASSAGE	DB81-02376A	2	SA
10	AS-SUPPORTER OF AIR PASSAGE	DB81-02378A	1	SA
11	A/S ASSY-UP FRONT BOARD	DB82-01035A	1	SA
12	A/S ASSY-CHASSIS	DB82-01036A	1	SA
13	AS-WATER COLLECTOR	DB81-02379A	1	SA
14	AS-SEAL STOPPER	DB81-02368A	4	SA
15	AS-WATERPROOF BOARD	DB81-02380A	1	SA
16	A/S ASSY-PIPE TEMPERATURE SENSOR	DB82-01029A	1	SA
17	A/S ASSY-EVAPORATOR	DB82-01045A	1	SA
17.1	A/S ASSY-INPUT PIPE	DB82-01046A	1	SA
17.1.1	AS-THROTTLE DISTRIBUTOR	DB81-02402A	1	SA
18	AS-WATER COLLECTOR	DB81-02381A	1	SA
19	AS-FIX BOARD OF WATER COLLECTOR	DB81-02369A	1	SA
20	AS-SUPPORTER OF WATER COLLECTOR	DB81-02370A	2	SA
21	AS-UNDERSIDE SUPPORTING BOARD	DB81-02382A	1	SA
22	A/S ASSY-COVER BOARD	DB82-01030A	1	SA
23	AS-AIR FILTER	DB81-02383A	1	SA
24	AS-AIR FILTER SHUTTER	DB81-02384A	1	SA
26	AS-UPSIDE SUPPORTER BOARDING	DB81-02385A	1	SA

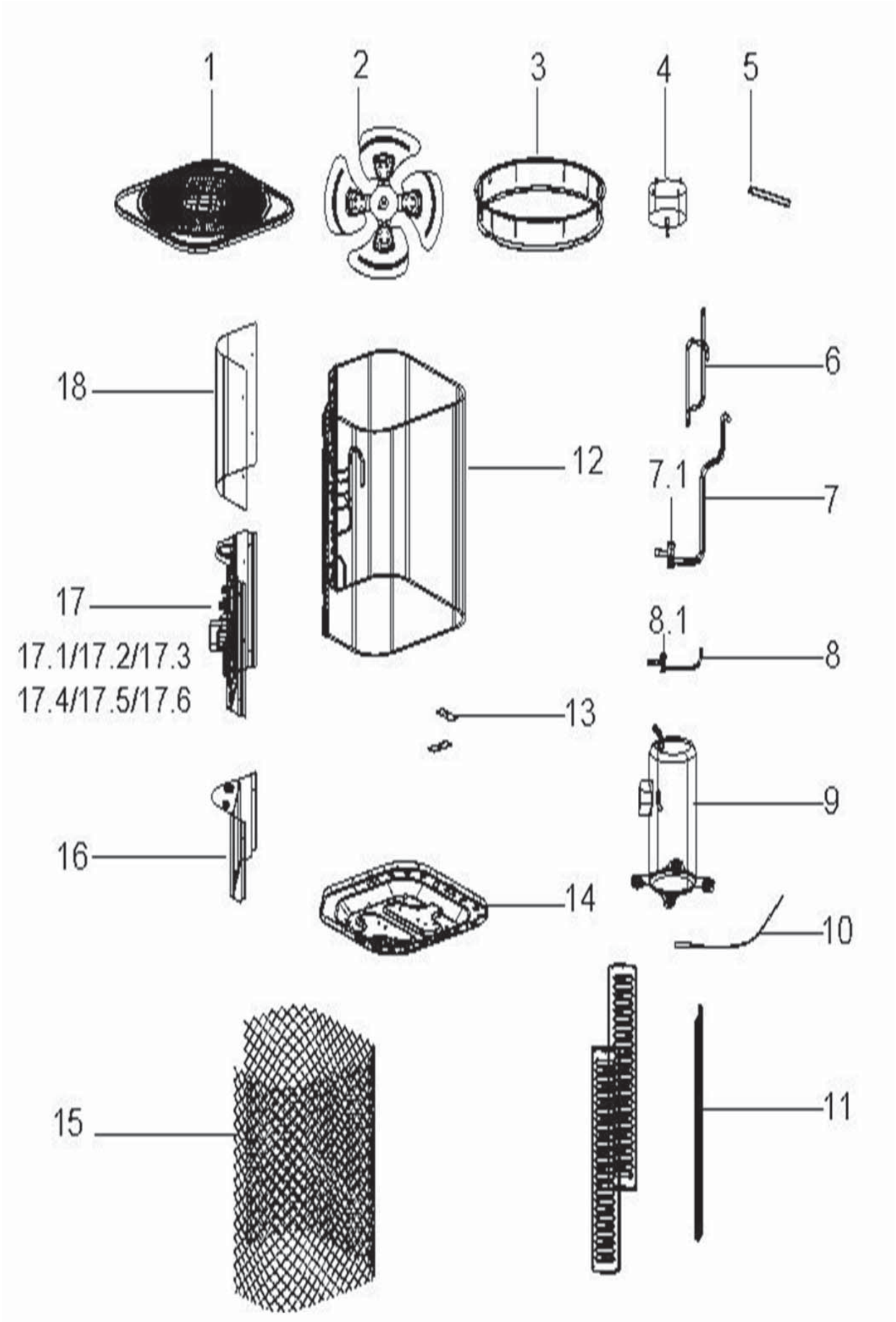
5-1 INDOOR UNIT (NS060DCRCA)



- PART LIST

No.	Part Name	OEM code	Quantity	SA/SNA
1	A/S ASSY-UNDERSIDE BOARD	DB82-01031A	1	SA
2	A/S ASSY-UPSIDE BOARD	DB82-01032A	1	SA
3	A/S ASSY-ELECTRONIC CONTROL BOX	DB82-01033A	1	SA
3.1	AS-POLE	DB81-02371A	4	SA
3.2	A/S ASSY-MAIN CONTROL BOARD	DB82-01028A	1	SA
3.3	AS-24V AC TRANSFORMER	DB81-02364A	1	SA
3.4	AS-TRANSFORMER	DB81-02365A	1	SA
3.5	AS-GROUNDING TERMINAL	DB81-02366A	1	SA
3.6	AS-WIRE JOINT	DB81-02367A	1	SA
3.7	AS-COMPRESSOR CAPACITOR	DB81-02372A	1	SA
4	AS-ASYNCHRONOUS MOTOR	DB81-02403A	1	SA
5	A/S ASSY-FAN	DB82-01034A	1	SA
6	AS-TOP WIND BAFFLE BOARD	DB81-02373A	1	SA
7	AS-LEFT WIND BAFFLE BOARD	DB81-02374A	1	SA
8	AS-BOTTOM WIND BAFFLE BOARD	DB81-02375A	1	SA
9	AS-RIGHT WIND BAFFLE BOARD	DB81-02377A	1	SA
10	AS-SUPPORTER OF AIR PASSAGE	DB81-02376A	2	SA
10	AS-SUPPORTER OF AIR PASSAGE	DB81-02378A	1	SA
11	A/S ASSY-UP FRONT BOARD	DB82-01035A	1	SA
12	A/S ASSY-CHASSIS	DB82-01036A	1	SA
13	AS-WATER COLLECTOR	DB81-02379A	1	SA
14	AS-SEAL STOPPER	DB81-02368A	4	SA
15	AS-WATERPROOF BOARD	DB81-02380A	1	SA
16	A/S ASSY-PIPE TEMPERATURE SENSOR	DB82-01029A	1	SA
17	A/S ASSY-EVAPORATOR	DB82-01047A	1	SA
17.1	A/S ASSY-INPUT PIPE	DB82-01048A	1	SA
17.1.1	AS-THROTTLE DISTRIBUTOR	DB81-02404A	1	SA
18	AS-WATER COLLECTOR	DB81-02381A	1	SA
19	AS-FIX BOARD OF WATER COLLECTOR	DB81-02369A	1	SA
20	AS-SUPPORTER OF WATER COLLECTOR	DB81-02370A	2	SA
21	AS-UNDERSIDE SUPPORTING BOARD	DB81-02382A	1	SA
22	A/S ASSY-COVER BOARD	DB82-01030A	1	SA
23	AS-AIR FILTER	DB81-02383A	1	SA
24	AS-AIR FILTER SHUTTER	DB81-02384A	1	SA
26	AS-UPSIDE SUPPORTER BOARDING	DB81-02385A	1	SA

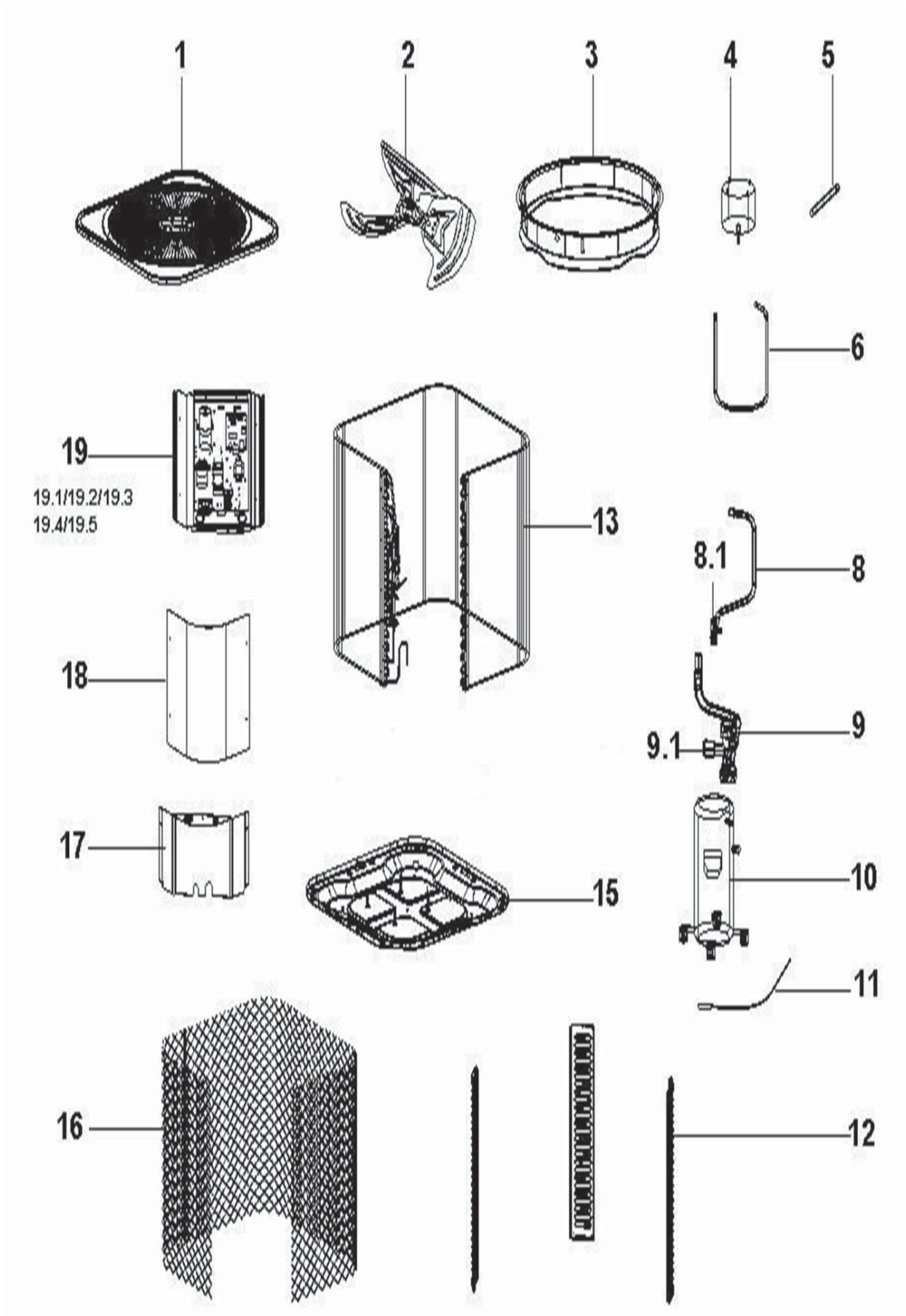
5-2 OUTDOOR UNIT (RC036FCRCA)



- PART LIST

No.	Part Name	OEM code	Quantity	SA/SNA
1	A/S ASSY-TOP COVER	DB82-01003A	1	SA
2	AS-AXIAL FLOW FAN	DB81-02332A	1	SA
3	AS-VENTILATION RING	DB81-02335A	1	SA
4	AS-ASYNCHRONOUS MOTOR	DB81-02336A	1	SA
5	AS-WIRE GUIDE PIPE	DB81-02338A	1	SA
6	AS-DISCHARGE PIPE	DB81-02339A	1	SA
7	A/S ASSY-GAS VALVE	DB82-01004A	1	SA
7.1	AS-VALVE BODY	DB81-02340A	1	SA
8	A/S ASSY-LIQUID VALVE	DB82-01011A	1	SA
8.1	AS-VALVE BODY	DB81-02341A	1	SA
9	AS-COMPRESSOR	DB81-02349A	1	SA
10	A/S ASSY-COMPRESSOR WIRE	DB82-01005A	1	SA
11	AS-SUPPORTING BOARD	DB81-02352A	3	SA
12	A/S ASSY-CONDENSER	DB82-01006A	1	SA
13	AS-NON SLIP PADS 1	DB81-02355A	2	SA
14	A/S ASSY-CHASSIS	DB82-01007A	1	SA
15	AS-REAR NET	DB81-02356A	1	SA
16	A/S ASSY-UNDERSIDE BOARD	DB82-01008A	1	SA
17	A/S ASSY-ELECTRONIC CONTROL BOX	DB82-01009A	1	SA
17.1	AS-INSTALL PLATE OF ELECTRIC PART	DB81-02360A	1	SA
17.2	A/S ASSY-E-PART BOX INSTALL BOARD	DB82-01010A	1	SA
17.3	AS-AC CONTACTOR	DB81-02342A	1	SA
17.4	AS-COMPRESSOR CAPACITOR	DB81-02347A	1	SA
17.5	AS-WIRE JOINT	DB81-02343A	1	SA
17.5	AS-WIRE JOINT	DB81-02344A	1	SA
17.6	AS-FAN MOTOR CAPACITOR	DB81-02359A	1	SA
17.7	A/S ASSY-E-PART BOX INSTALL BOARD	DB82-01010A	1	SA
18	AS-SIDE BOARD	DB81-02346A	1	SA

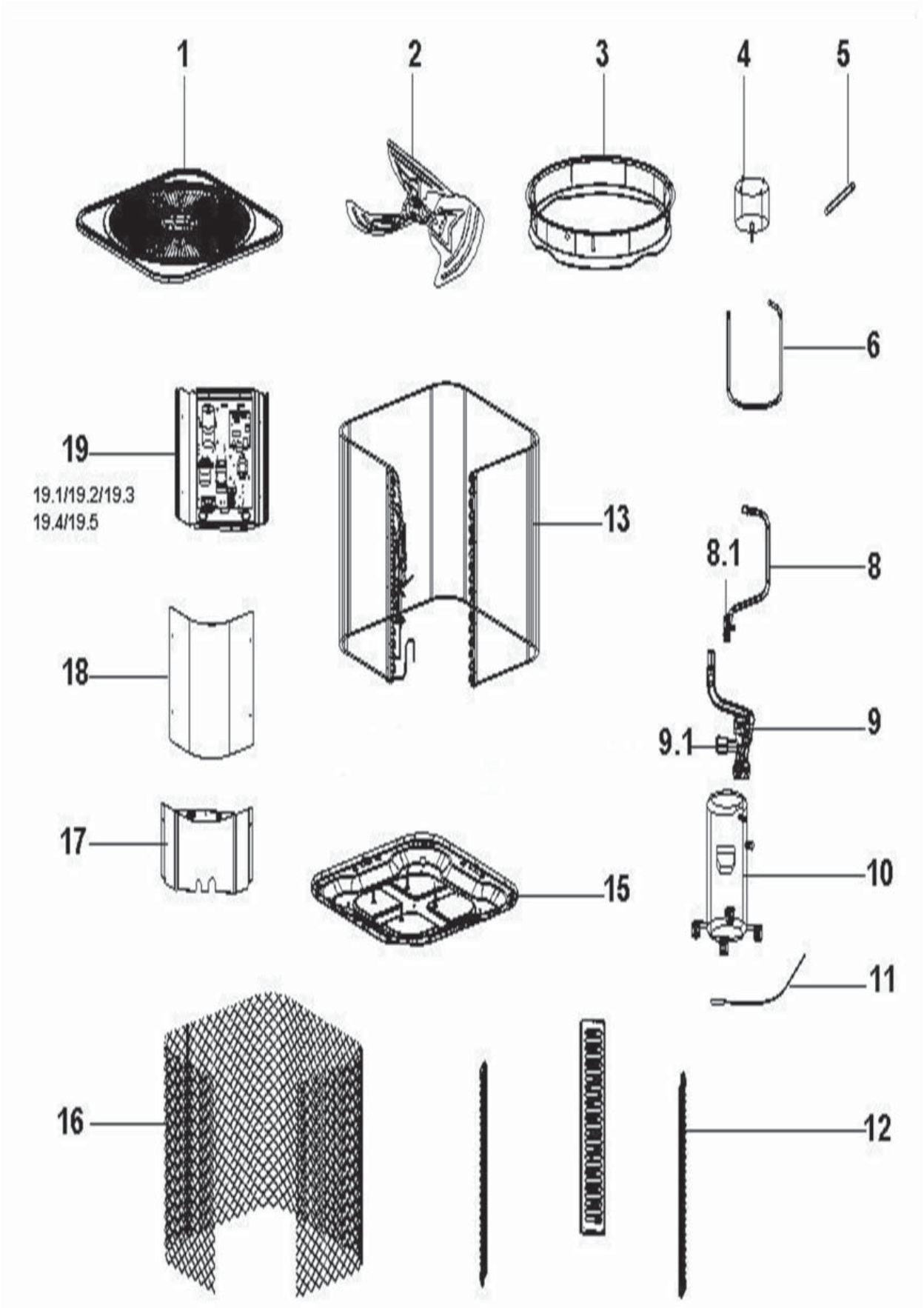
5-2 OUTDOOR UNIT (RC048FCRCA)



- PART LIST

No.	Part Name	OEM code	Quantity	SA/SNA
1	A/S ASSY-TOP COVER	DB82-01012A	1	SA
2	AS-AXIAL FLOW FAN	DB81-02333A	1	SA
3	AS-VENTILATION RING	DB81-02334A	1	SA
4	AS-ASYNCHRONOUS MOTOR	DB81-02337A	1	SA
5	AS-WIRE GUIDE PIPE	DB81-02476A	1	SA
6	A/S ASSY-DISCHARGE PIPE	DB82-01014A	1	SA
8	A/S ASSY-GAS VALVE	DB82-01015A	1	SA
8.1	AS-VALVE BODY	DB81-02340A	1	SA
9	A/S ASSY-LIQUID VALVE	DB82-01011A	1	SA
9.1	AS-VALVE BODY	DB81-02341A	1	SA
10	AS-COMPRESSOR	DB81-02350A	1	SA
11	A/S ASSY-COMPRESSOR WIRE	DB82-01016A	1	SA
12	AS-SUPPORTING BOARD	DB81-02353A	3	SA
13	A/S ASSY-CONDENSER	DB82-01017A	1	SA
15	A/S ASSY-CHASSIS	DB82-01013A	1	SA
16	AS-REAR NET	DB81-02357A	1	SA
17	A/S ASSY-UNDERSIDE BOARD	DB82-01018A	1	SA
18	AS-SIDE BOARD	DB81-02346A	1	SA
19	A/S ASSY-ELECTRONIC CONTROL BOX	DB82-01019A	1	SA
19.1	AS-INSTALL PLATE OF ELECTRIC PART	DB81-02361A	1	SA
19.2	AS-INSTALL PLATE OF ELECTRIC PART	DB81-02362A	1	SA
19.3	AS-AC CONTACTOR	DB81-02342A	1	SA
19.4	AS-WIRE JOINT	DB81-02343A	1	SA
19.4	AS-WIRE JOINT	DB81-02344A	1	SA
19.5	AS-COMPRESSOR CAPACITOR	DB81-02347A	1	SA
19.5	AS-COMPRESSOR CAPACITOR	DB81-02345A	1	SA

5-2 OUTDOOR UNIT (RC060FCRCA)



- PART LIST

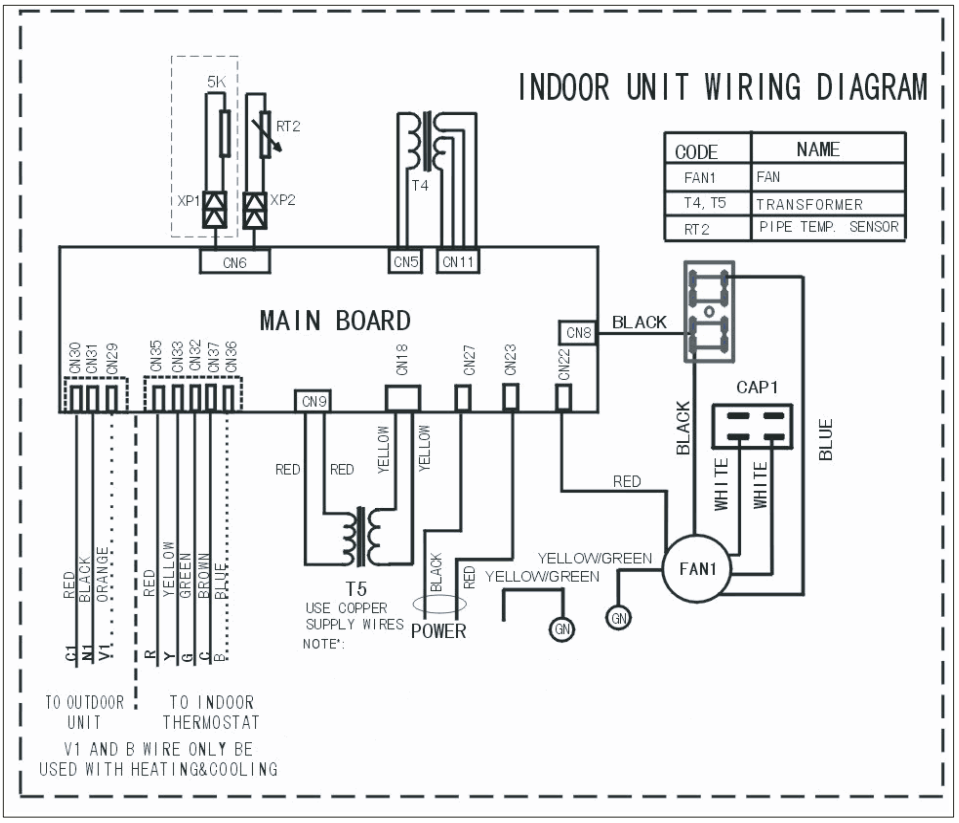
No.	Part Name	OEM code	Quantity	SA/SNA
1	A/S ASSY-TOP COVER	DB82-01012A	1	SA
2	AS-AXIAL FLOW FAN	DB81-02333A	1	SA
3	AS-VENTILATION RING	DB81-02334A	1	SA
4	AS-ASYNCHRONOUS MOTOR	DB81-02337A	1	SA
5	AS-WIRE GUIDE PIPE	DB81-02476A	1	SA
6	A/S ASSY-DISCHARGE PIPE	DB82-01020A	1	SA
8	A/S ASSY-GAS VALVE	DB82-01021A	1	SA
8.1	AS-VALVE BODY	DB81-02340A	1	SA
9	A/S ASSY-LIQUID VALVE	DB82-01011A	1	SA
9.1	AS-VALVE BODY	DB81-02341A	1	SA
10	AS-COMPRESSOR	DB81-02351A	1	SA
11	A/S ASSY-COMPRESSOR WIRE	DB82-01022A	1	SA
12	AS-SUPPORTING BOARD	DB81-02354A	3	SA
13	A/S ASSY-CONDENSER	DB82-01023A	1	SA
15	A/S ASSY-CHASSIS	DB82-01013A	1	SA
16	AS-REAR NET	DB81-02358A	1	SA
17	A/S ASSY-UNDERSIDE BOARD	DB82-01024A	1	SA
18	AS-SIDE BOARD	DB81-02346A	1	SA
19	A/S ASSY-ELECTRONIC CONTROL BOX	DB82-01025A	1	SA
19.1	AS-INSTALL PLATE OF ELECTRIC PART	DB81-02361A	1	SA
19.2	AS-INSTALL PLATE OF ELECTRIC PART	DB81-02363A	1	SA
19.3	AS-AC CONTACTOR	DB81-02342A	1	SA
19.4	AS-WIRE JOINT	DB81-02343A	1	SA
19.4	AS-WIRE JOINT	DB81-02344A	1	SA
19.5	AS-COMPRESSOR CAPACITOR	DB81-02347A	1	SA
19.5	AS-COMPRESSOR CAPACITOR	DB81-02348A	1	SA

6. Electrical Parts List

■ **This products don’t supply elecrical part list(OEM model)**

7. Wiring Diagram

7-1 Indoor Unit



NS036DCRCA, NS048DCRCA,NS060DCRCA

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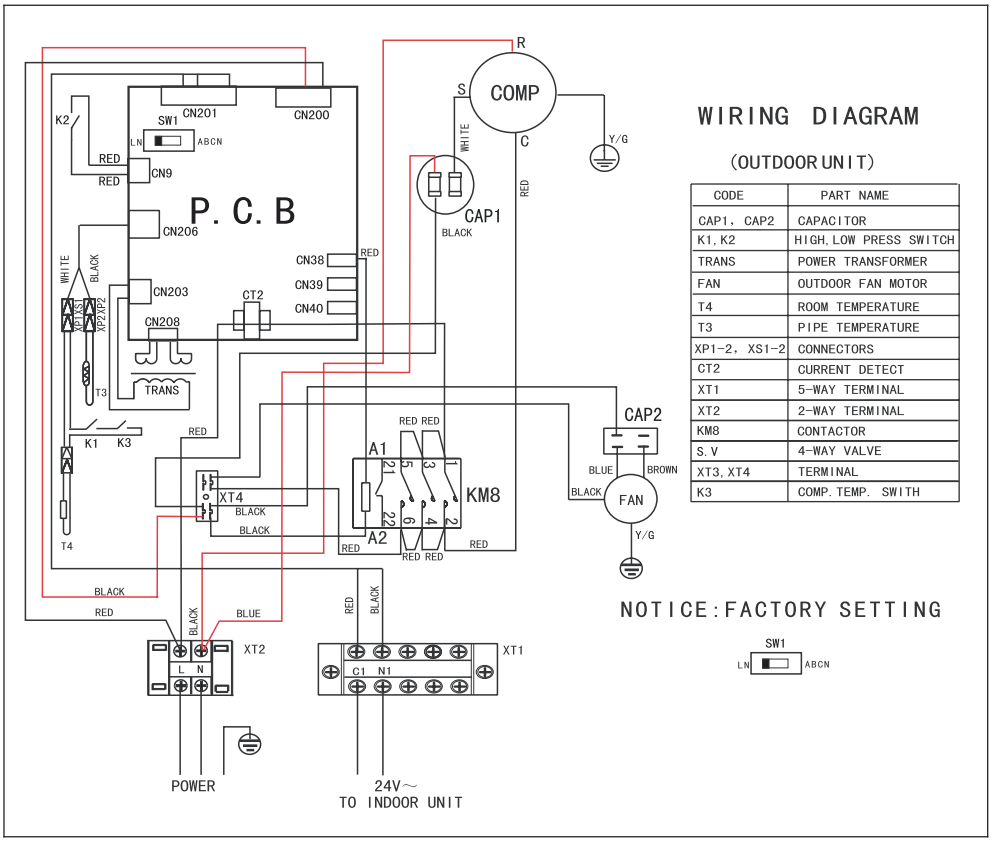
7-2 Outdoor Unit



CODE	PART NAME
CAP1, CAP2	CAPACITOR
K1, K2	HIGH, LOW PRESS SWITCH
TRANS	POWER TRANSFORMER
FAN	OUTDOOR FAN MOTOR
T4	ROOM TEMPERATURE
T3	PIPE TEMPERATURE
XP1-2, XS1-2	CONNECTORS
CT2	CURRENT DETECT
XT1	5-WAY TERMINAL
XT2	2-WAY TERMINAL
KM8	CONTACTOR
S.V	4-WAY VALVE
XT3, XT4	TERMINAL
K3	COMP. TEMP. SWITH

RC036(48)FCRCA

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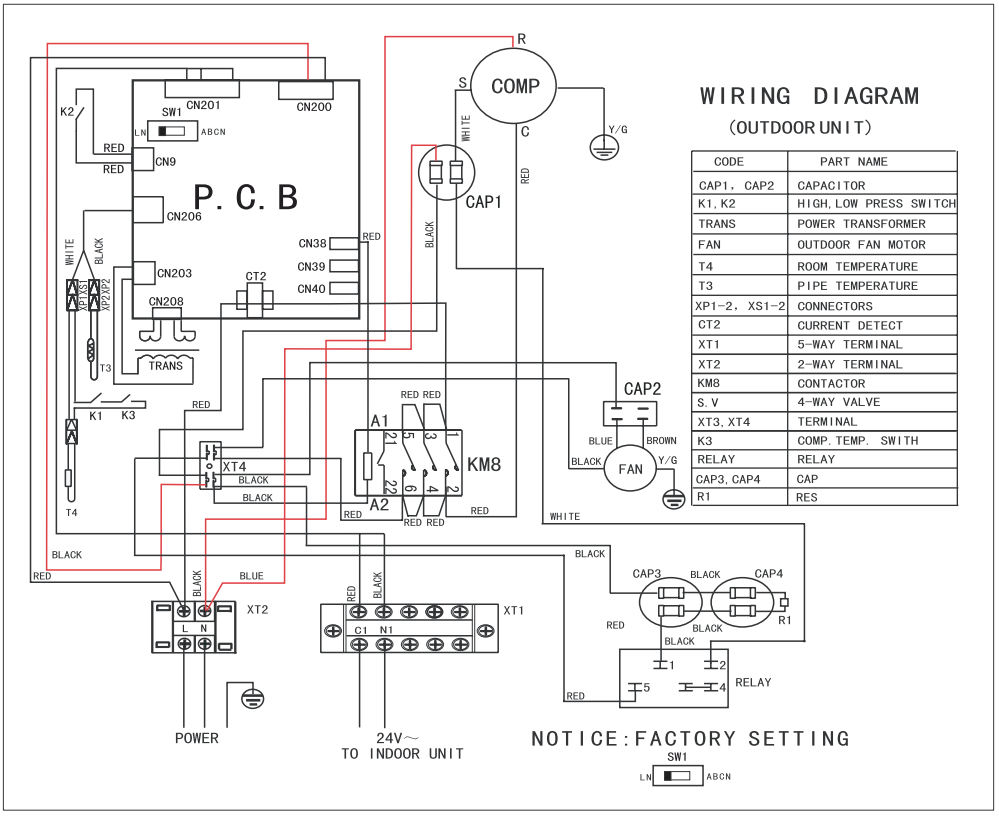
7-2 Outdoor Unit



RC060FCRCA

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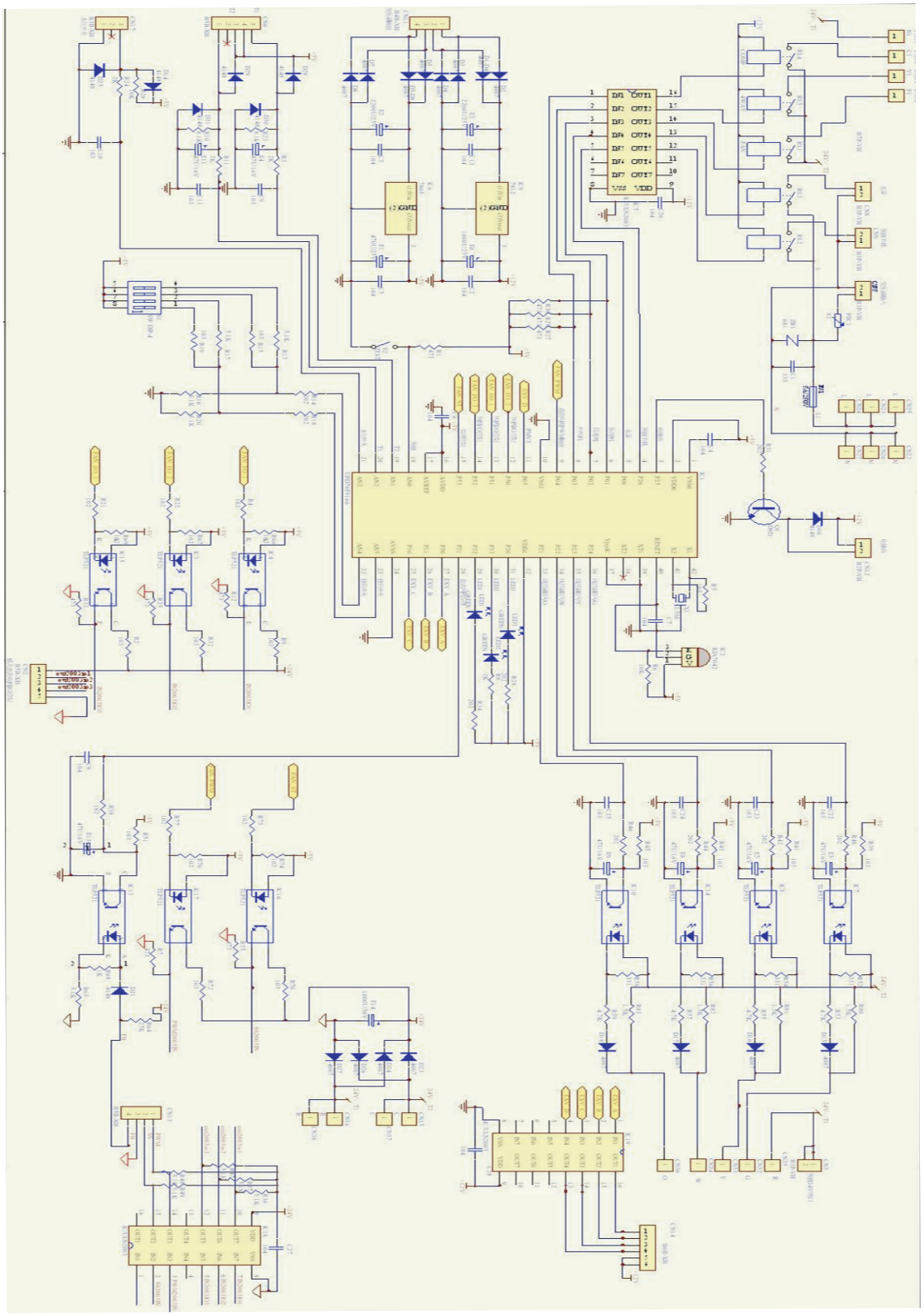
8. Schematic Diagram

8-1 Indoor Unit



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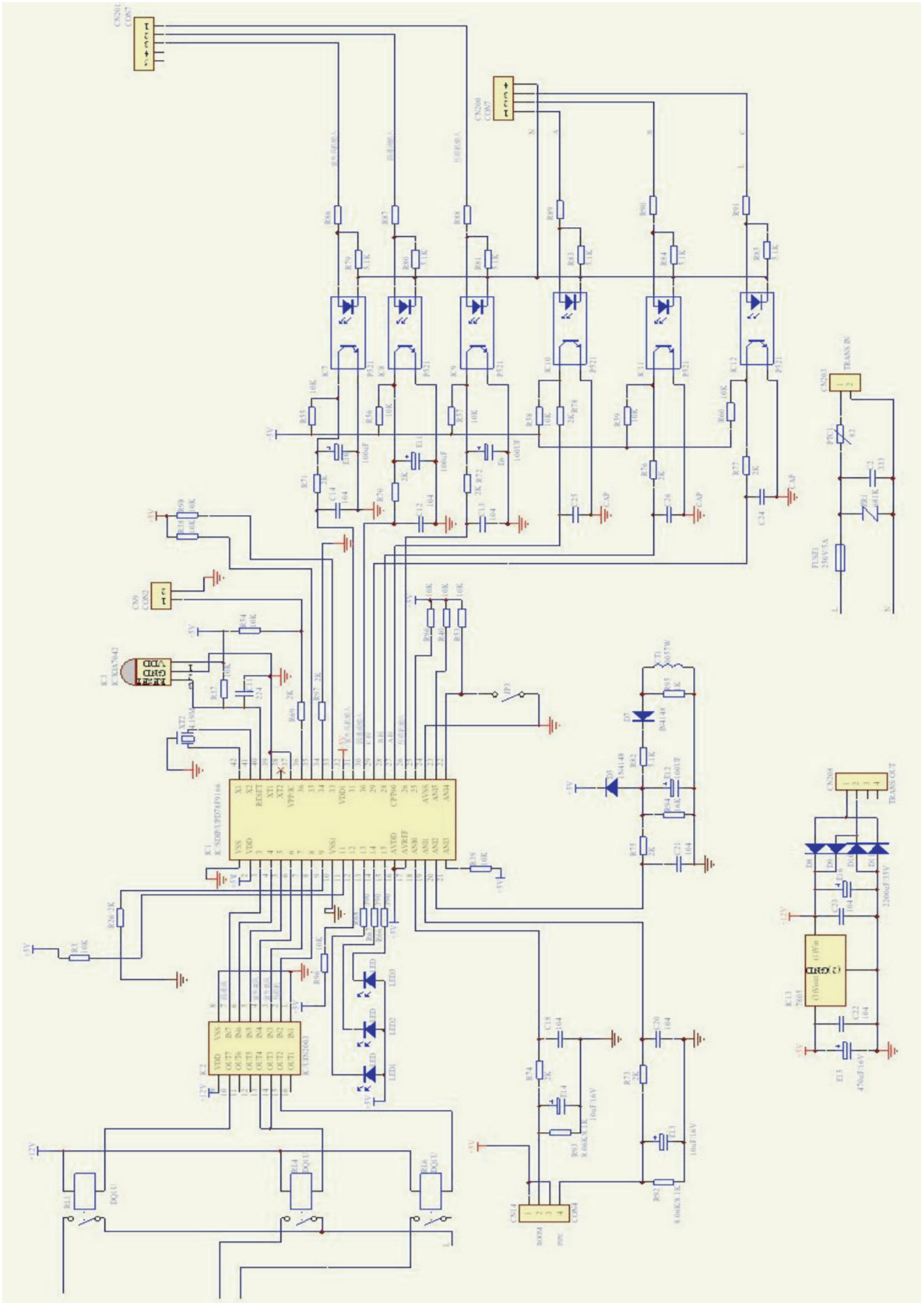
8-2 Outdoor Unit



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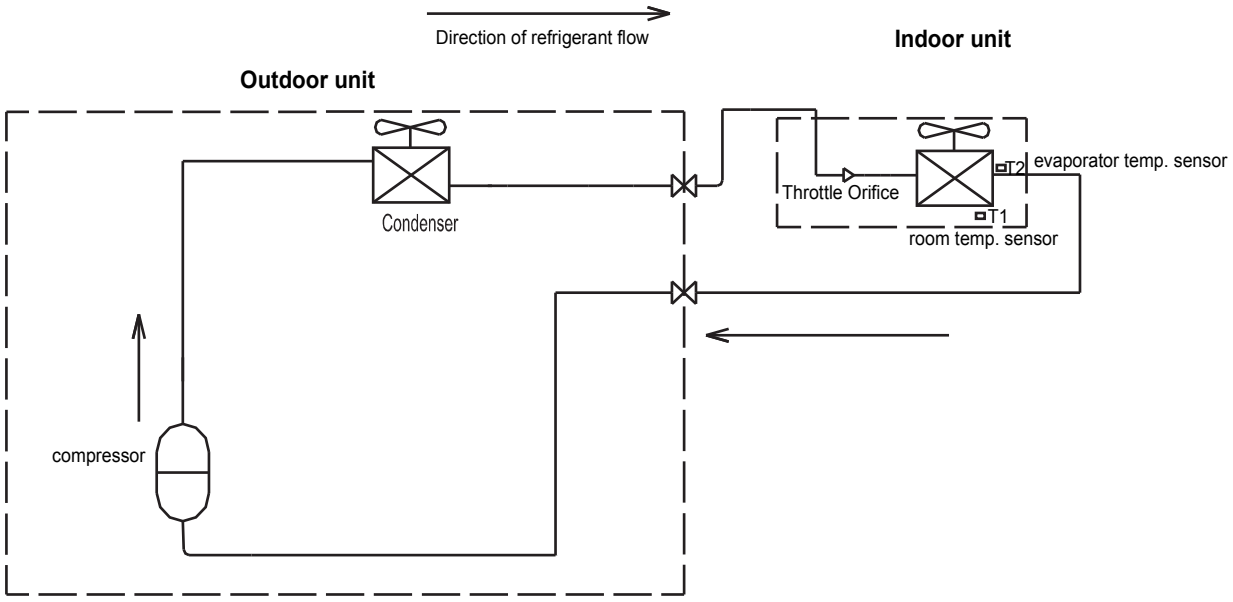
9. Refrigerating cycle diagram

*Allowable pipe length : AC36BTV, AC48BTV Max. 25m, AC60BTV Max.30m
*Allowable drop distance : AC36BTV, AC48BTV Max.10m, AC60BTV Max. 15m



Additional charge

1). When the length of the one-way pipe is less than 5m, additional refrigerant charge after vacuuming is unnecessary.

2). When the length of one-way pipe is over 5m, the additional charge quantity is as follows (unit in gram):

	Calculation method		
Refrigerant	Liquid diameter mm	Unit amount (g/m)	Formula
R22	Φ6.35	30	(L-5)× 30
	Φ9.53	65	(L-5)× 65
	Φ12.7	90	(L-5)× 90

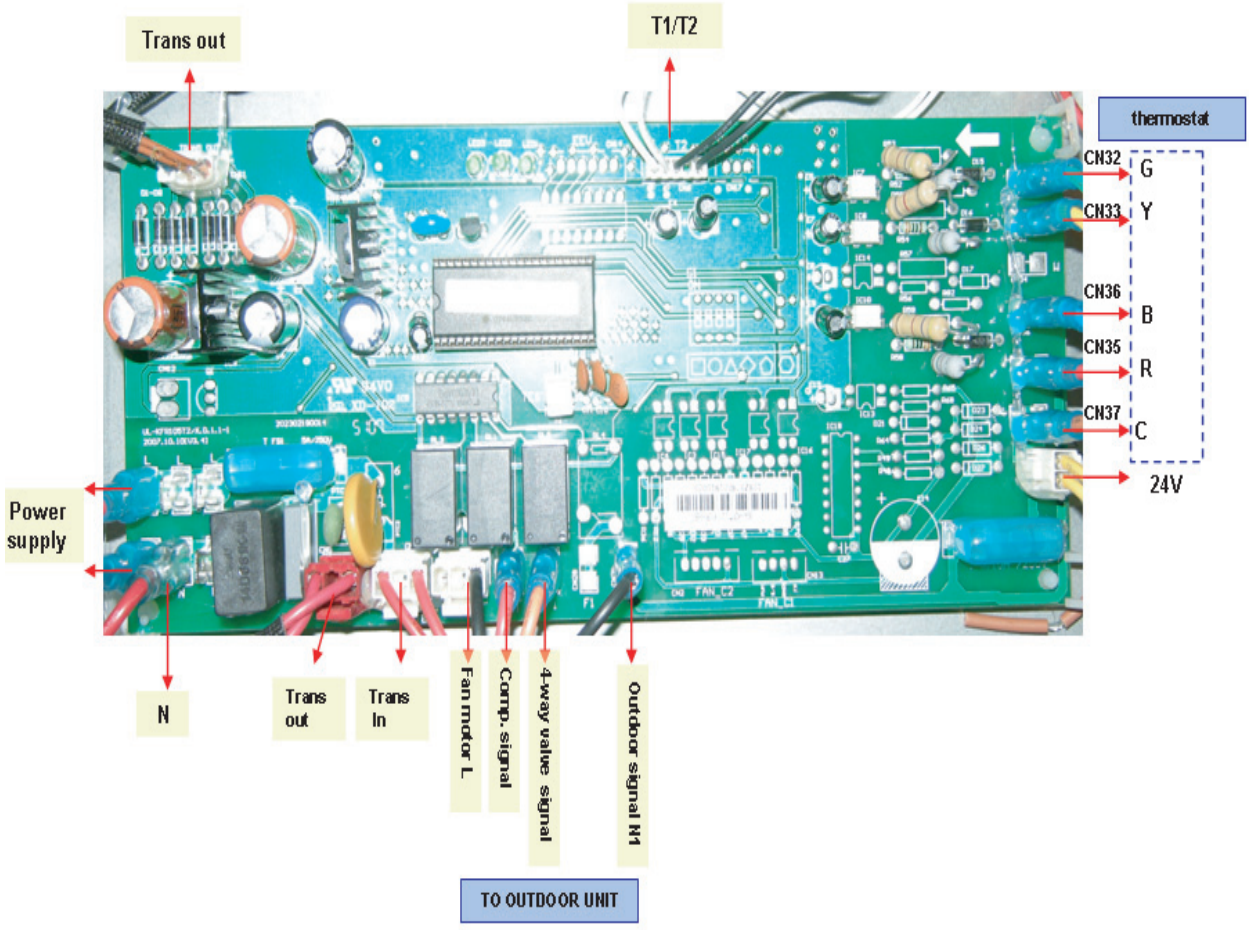
Remark.

1. The additional refrigerant charge is simply related with the liquid pipe diameter
2. In the up formula, " L" means total length of liquid pipe(unit: m)

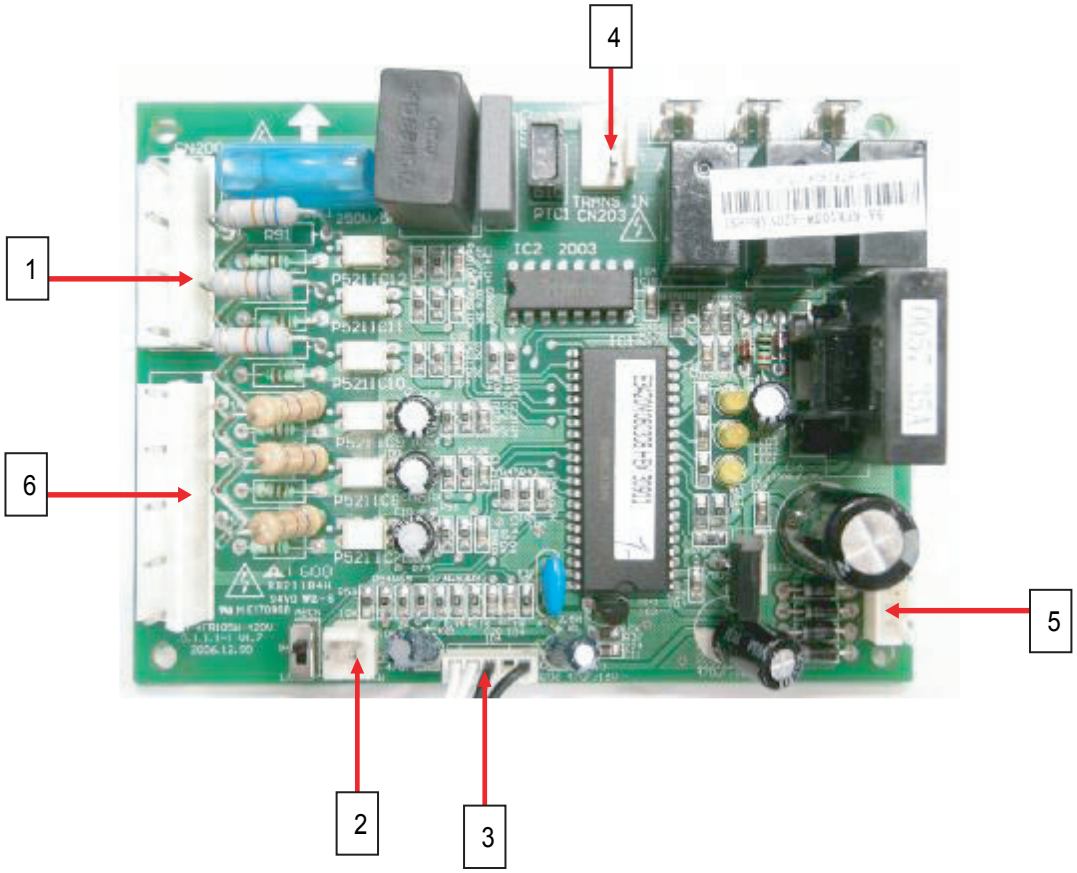
10. PCB Diagram

10-1 Indoor Unit

Indoor PCB of NS36, 48, 60DCRCA



Outdoor PCB of RC036FCRCA



1	Power input	5	Trans out
2	Hi/low pressur s/w	6	24V to indoor
3	Temp sensor	7	
4	Trans In		

11. Operating Instruction and Installation

11-1 Operation Modes and Function

1.1 Performance Index

No.	Item	Index
1	Applicable Voltage Range	175～253V
2	A/C Frequency	60Hz/50Hz
3	Working environment temperature	-7℃~+43℃(19.4℉~109.4℉)

※ Cooling only：21～43℃(Outdoor temp)

1.2 Main Parts Introduction

1.2.1 Indoor Fan

Indoor fan has only one speed.

Breeze speed only for anti-cold air in heating mode machine.

1.2.2 Buzzer

2.2.1 It will buzz 2 times when electrifying the

2.2.2 It will buzz once for 0.3 second when receiving the remote signal or other valid signal.

1.2.3 Indicator

2.3.1 There are 4 indicators: operating indicator, timer indicator, warning indicator, defrosting/pre-heating indicator (fan only indicator for cooling-only A/C). ctive.

2.3.2 LED indicates errors when protection is effe

1.3. Operation Modes and Functions

1.3.1 Manual Operation

1.3.1.1 The manual operation mode is not provided in AHU indoors.

1.3.2 Cooling Mode

1.3.2.1 Conditions for the compressor and outdoor fan action (Ts = set temperature, Ta=room temperature)

	Condition	Compressor	Outdoor fan
Room temp. up	Ta > Ts+1	On	On
	Ta <Ts+1	Off	Off
Room temp. down	Ta > Ts	On	On
	Ta <Ts	Off	Off

1.3.3 Heating Mode (This function is not avaluable in cooling only models)

1.3.4 Defrost (only available to heating mode)

1.3.5 Dehumidifying Mode

1.3.5.1 Dehumidifying mode is the cooling operation.

1.3.5.2 Protective functions are the same as the cooling mode.

1.3.6 Fan Only Mode

1.3.6.1 Under this mode compressor and outdoor fan are shut down.

1.3.7 Auto Mode

1.3.7.1 Selected by controler. Under this mode, temperature can be set between 17 and 30°C.

1.3.7.2 When entering auto mode, fan only or cooling operation will be chosen according to the room temperature Ta and the set temperature Ts automatically.

1.4. Other Functions

1.4.1 LED Display

AHU has only pipe temp sensor. And wired controler input signal for error code.

1.4.2 Timer

Refer to wired controller manual for detail operation.

Note: The timer is valid for one operation of the A/C.

1.5. Protection

1.5.1 Three-minute delay for the compressor start-up.

At the beginning of energizing, 1-minute will be needed to start the compressor. If the compressor stops during the operating process (including the switchover between cooling, dehumidifying and heating mode), 3-minute delay will be needed to restart the compressor.

1.5.2 Evaporator protection against high temperature (heating mode)

2.1.4 Evaporator Protection against low temperature(cooling mode)

2.1.4.1 When the evaporator pipe temperature ≤ 3°c and this lasts for 3 minutes, the compressor and outdoor fan will be shut off.

2.1.4.2 When the evaporator pipe temperature ≥ 7°c, it recovers.

2.1.4.3 The restart of the compressor shall execute the delay protection.

2.1.5 Anti-cold air protection

Only available to heating mode, including heating mode, heating operation under auto mode.

2.1.6 Condenser high temperature protection

2.1.6.1Only available to cooling

2.1.6.2 Delay protection should be performed when the compressor restarts.

2.1.7 Outdoor protection

When outdoor protection happen, system will stop running and LED display corresponding contents.(as the following part referred)

2.1.8 Power supply electricity sequence protection

1. For 1 phase unit it owns a starting circuit. 1 second before startup, capacitor is switched on and then broken.

2. For 3 phase unit it must have the phase sequence and lacking of phase checking and protecting function.

Etc.

3. System precision

1) Temperature sampling precision: ±1℃

2) Current sampling precision: ±1.5 amps

3) Timing sampling precision: ±1min/hour

4) Swing angle sampling precision: 0.7 degree

Note ***The thermostat controller is not supplied with the air conditioner.***

Choose non-programmed electrical thermostat series as following

- ***Honeywell, TH5220D***
- ***Hailin, A3211***

Thermostat(holleywell) connection

1 Choose cooling and heating model.

2 Note Connection.

Rooftop Package	Thermostat
R	R
CR	C
G	G
Y	Y
W1/0/B	B

12. Trouble shooting

12-1 Self-di agnosis

(1) Indoor unit's LED indication

NO.	Malfunction	LED1	LED2	LED3
1	Indoor temp. sensor error	☆	×	×
2	Wire control input error	☆	×	☆

Note: ×—— LED off , ☆——LED flash quickly

(2) LEDs' for the indication of outdoor trouble

This table is only suitable for the modles with PCB.

Type	Item	LED1	LED2	LED3
Malfunction	Phase sequence	Flash	Off	Off
Malfunction	Low pressure protection	Flash	Flash	Off
Malfunction	Current protection	Off	Off	Flash
Malfunction	Communication malfunction	Flash	Off	Flash
Malfunction	T3 open circuit, short circuit malfunction	Off	Flash	Flash
Malfunction	T4 open circuit, short circuit malfunction (Compressor discharge protection)	Off	Flash	Off
Malfunction	Condenser high temperature protection	Flash	Flash	Flash

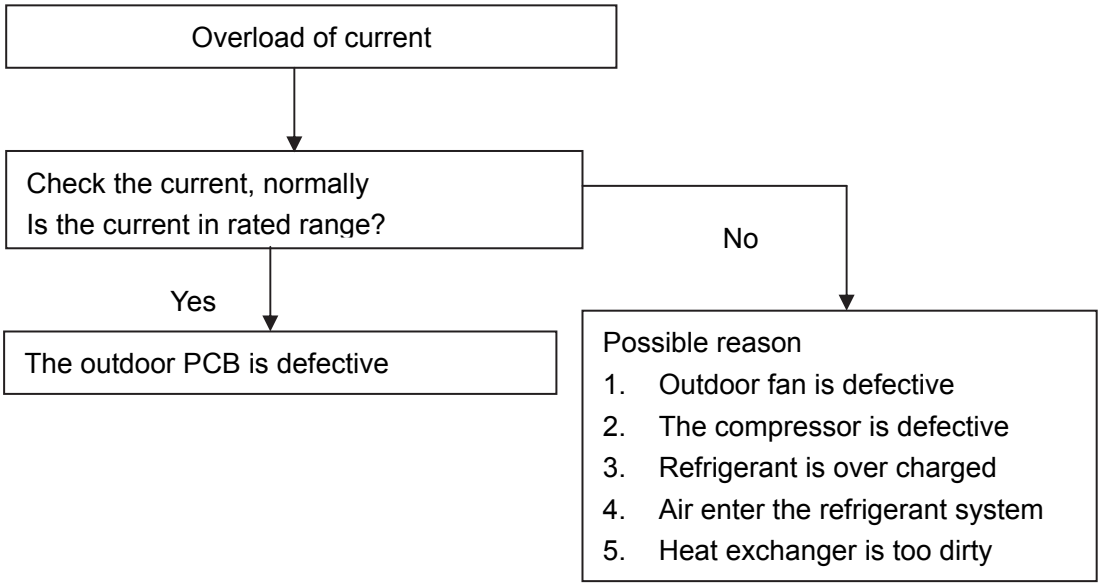
Remarks: It means the system in the stand-by when the LED1-LED3 lights flash slowly.

T3: Outdoor condenser's temperature

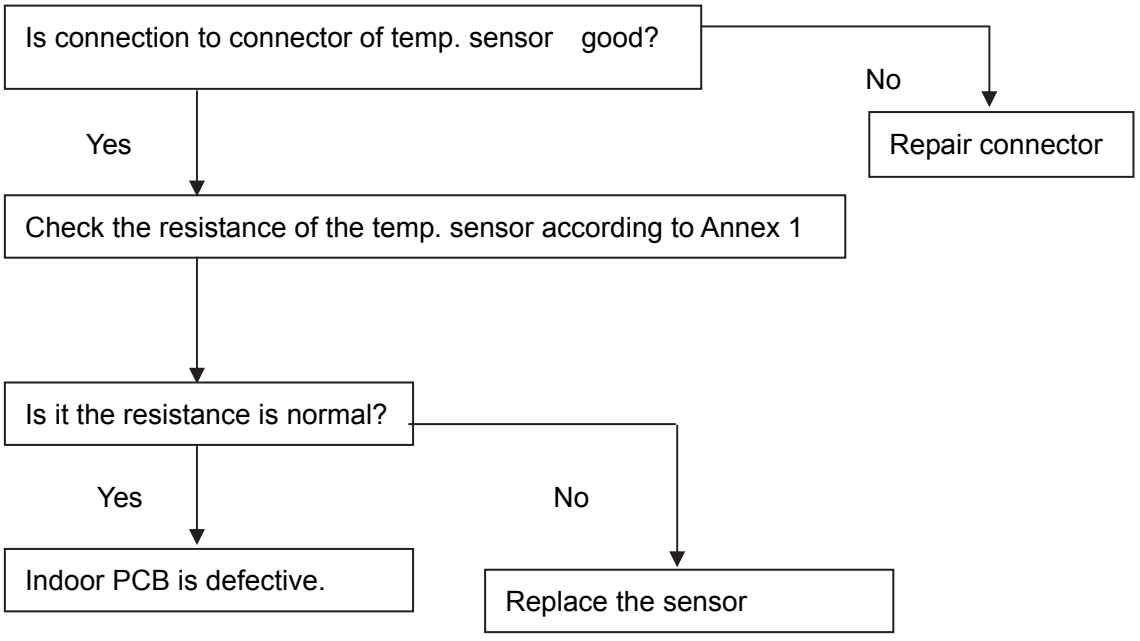
T4: Outdoor ambient temperature

12-2 Solving steps for typical malfunction

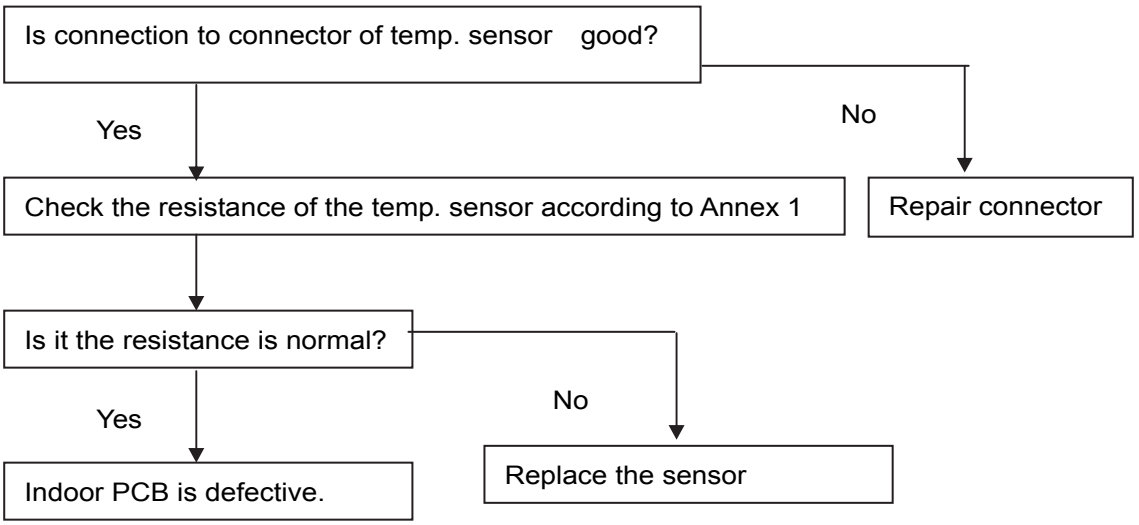
a. Overload of current


Overload of current
Check the current, normally
Is the current in rated range?
No
Yes
The outdoor PCB is defective
Possible reason
1. Outdoor fan is defective
2. The compressor is defective
3. Refrigerant is over charged
4. Air enter the refrigerant system
5. Heat exchanger is too dirty

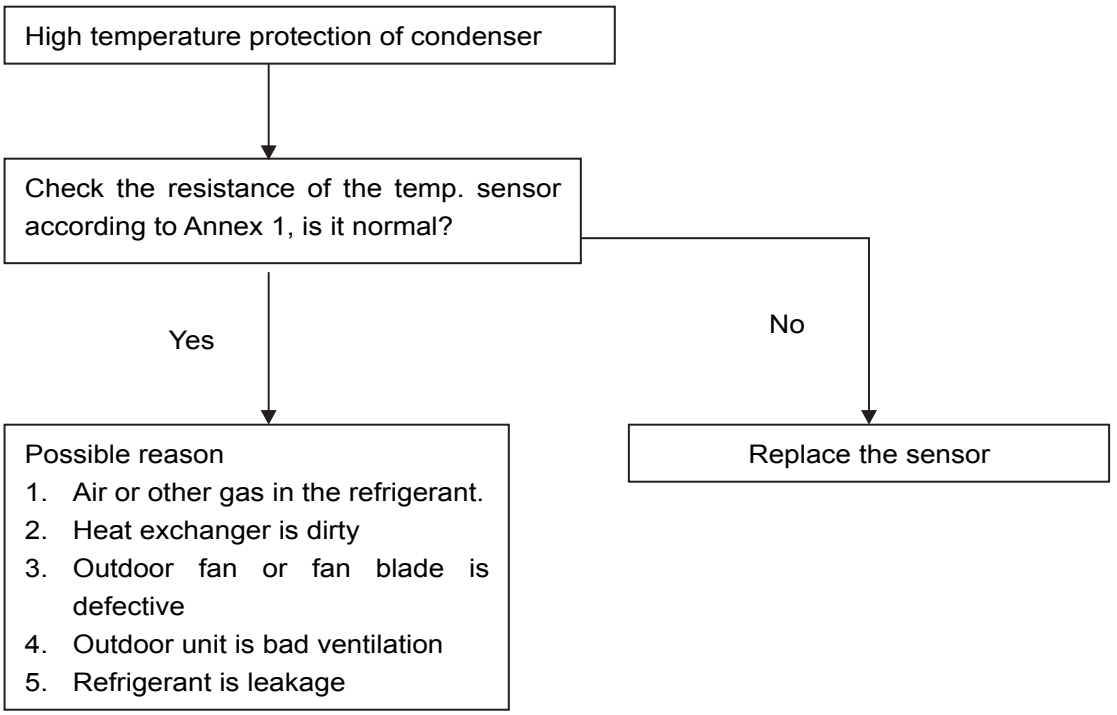
b. Open-circuit and short-circuit trouble



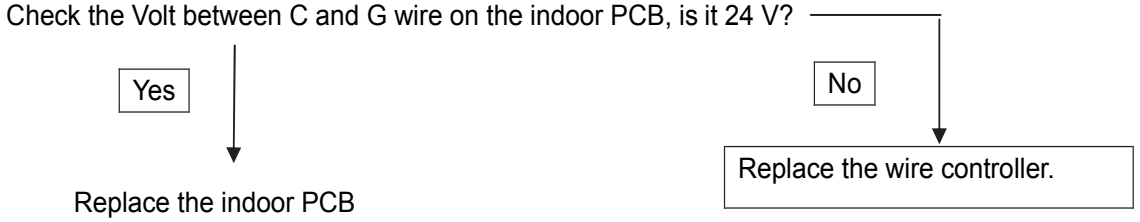
c. Open-circuit and short-circuit trouble



d. High temperature protection of condenser


High temperature protection of condenser
Check the resistance of the temp. sensor according to Annex 1, is it normal?
No
Yes
Replace the sensor
Possible reason
1. Air or other gas in the refrigerant.
2. Heat exchanger is dirty
3. Outdoor fan or fan blade is defective
4. Outdoor unit is bad ventilation
5. Refrigerant is leakage

e. Wire control input error



12-3 Servicing and Maintenance

1) Troubles and Solutions

If any the following abnormal conditions occur, turn off the power supply immediately. Please contact our dealer.	
TROUBLES	Indicator lamps flash rapidly, after your disconnecting and connecting the unit, the situation is the same.
	Fuse or circuit breaker work frequently.
	Foreign matter or water has fallen into the unit.
	controller is disabled or the switch is out of hand.
	Any other unusual conditioner is observed.

If any of the following conditions occur, check your unit and resolve corresponding problems referring to given remediation. If the trouble can't be settled contact our dealer.		
Trouble	Cause	Solutions
Unit does not start	Power failure.	Wait for the comeback of power
	Power switch is open.	Switch on the power
	Fuse of power switch may have blown.	Replace the fuse
	The time is not start-up time you have set.	Wait or cancel the time set.
Air flowing normally with low cooling effect	Temperature is not set correctly.	Set the temperature properly.
	Door or window is open.	Close door and window.
	Air filter is blocked with dust or dirtiness.	Clean the air filter.
	Inlet/outlet of indoor/outdoor units are blocked.	Clear all blockages.
	Inlet/outlet of indoor/outdoor units are blocked.	Clear the blockage, then restart your operation.
	Be in 3 minutes protection of compressor	Wait

NOTE: Do not replace electric wire or repair the air conditioner by yourself to avoid possible danger.

2) Clean

CAUTION: Please turn off your air conditioner and disconnect power supply before cleaning.

(1) CLEANING INDOOR UNIT

Use a dry to wipe the indoor unit.

A cloth dampened with cold water may be used if the indoor unit is too dirty.

Note: Do not use a chemically treated duster for wiping or leave such materials near the unit for long.

Do not use benzene, thinner, polishing powder, or similar solvents for cleaning.

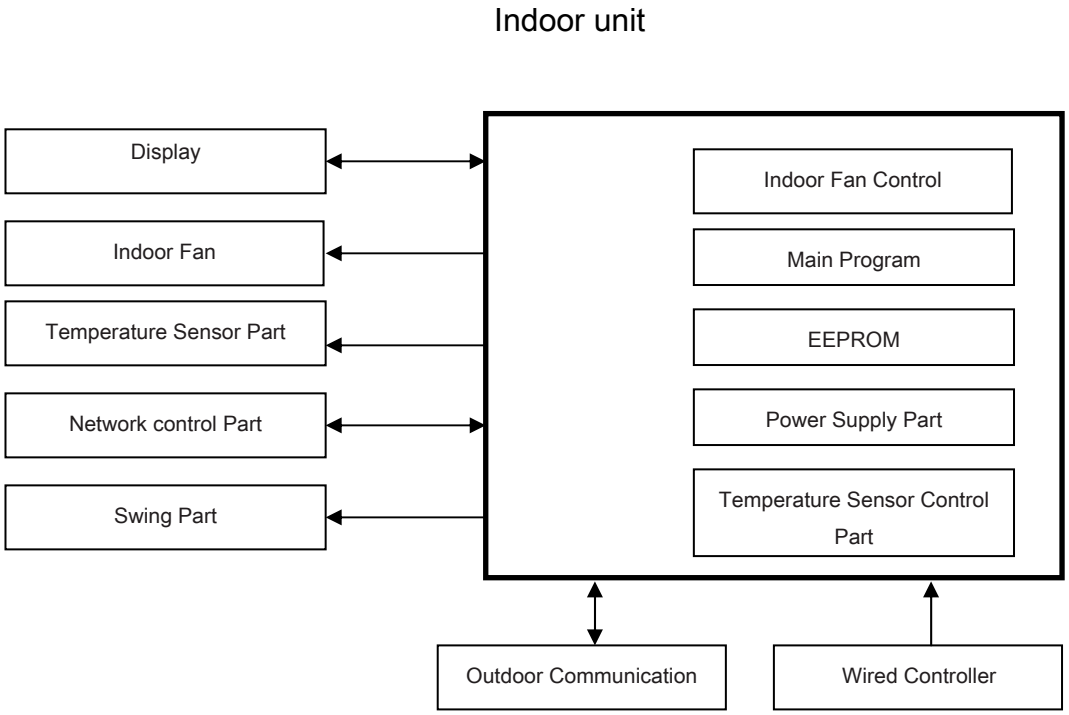
(2) CLEANING AIR FILTER

The air filter in unit can filter dust and other granules in air. It may reduce the cooling effect that the air filter is covered with dust. So please clean the air filter often.

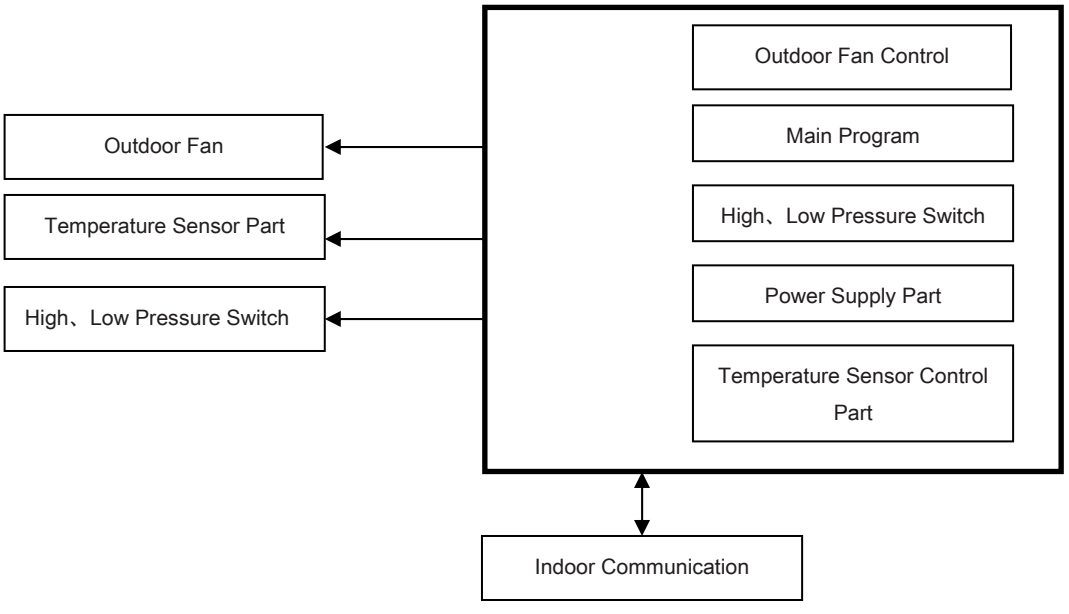
℃	K Ohm	℃	K Ohm	℃	K Ohm	℃	K Ohm
-20	115.266	20	12.6431	60	2.35774	100	0.62973
-19	108.146	21	12.0561	61	2.27249	101	0.61148
-18	101.517	22	11.5000	62	2.19073	102	0.59386
-17	96.3423	23	10.9731	63	2.11241	103	0.57683
-16	89.5865	24	10.4736	64	2.03732	104	0.56038
-15	84.2190	25	10.000	65	1.96532	105	0.54448
-14	79.3110	26	9.55074	66	1.89627	106	0.52912
-13	74.5360	27	9.12445	67	1.83003	107	0.51426
-12	70.1698	28	8.71983	68	1.76647	108	0.49989
-11	66.0898	29	8.33566	69	1.70547	109	0.48600
-10	62.2756	30	7.97078	70	1.64691	110	0.47256
-9	58.7079	31	7.62411	71	1.59068	111	0.45957
-8	56.3694	32	7.29464	72	1.53668	112	0.44699
-7	52.2438	33	6.98142	73	1.48481	113	0.43482
-6	49.3161	34	6.68355	74	1.43498	114	0.42304
-5	46.5725	35	6.40021	75	1.38703	115	0.41164
-4	44.0000	36	6.13059	76	1.34105	116	0.40060
-3	41.5878	37	5.87359	77	1.29078	117	0.38991
-2	39.8239	38	5.62961	78	1.25423	118	0.37956
-1	37.1988	39	5.39689	79	1.21330	119	0.36954
0	35.2024	40	5.17519	80	1.17393	120	0.35982
1	33.3269	41	4.96392	81	1.13604	121	0.35042
2	31.5635	42	4.76253	82	1.09958	122	0.3413
3	29.9058	43	4.57050	83	1.06448	123	0.33246
4	28.3459	44	4.38736	84	1.03069	124	0.32390
5	26.8778	45	4.21263	85	0.99815	125	0.31559
6	25.4954	46	4.04589	86	0.96681	126	0.30754
7	24.1932	47	3.88673	87	0.93662	127	0.29974
8	22.5662	48	3.73476	88	0.90753	128	0.29216
9	21.8094	49	3.58962	89	0.87950	129	0.28482
10	20.7184	50	3.45097	90	0.85248	130	0.27770
11	19.6891	51	3.31847	91	0.82643	131	0.27078
12	18.7177	52	3.19183	92	0.80132	132	0.26408
13	17.8005	53	3.07075	93	0.77709	133	0.25757
14	16.9341	54	2.95896	94	0.75373	134	0.25125
15	16.1156	55	2.84421	95	0.73119	135	0.24512
16	15.3418	56	2.73823	96	0.70944	136	0.23916
17	14.6181	57	2.63682	97	0.68844	137	0.23338
18	13.9180	58	2.53973	98	0.66818	138	0.22776
19	13.2631	59	2.44677	99	0.64862	139	0.22231

13. Block Diagram

13-1 Indoor Unit



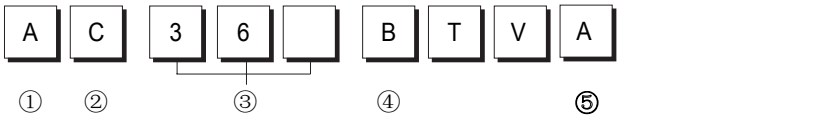
13-2 Outdoor Unit



14. Reference Sheet

14-1 Index for Model Name

※Project model code for Middle East product.



A	C	3	6		B	T	V	A
①	②		③		④			⑤

① Product Type			
Indoor	Cassette	1-Way	K
		2-Way	G
		4-Way	C
		Ceiling	N
	Duct	Slim Duct	E
		Silhouette	D
		HSP	H
		Built-in	B
	Ceiling	-	F
	PAC	-	P
	Split	-	W
Universal Outdoor (DPM)			U

② Mode	
C/O	C
H/P	H
H/P+Heater	E
C/O+Heater	G
C/O+Hydronic	N

③ Capacity	
Btu	kWx10
9K	26
12K	35
14K	40
18K	52
24K	70
28K	82
32K	94
36K	105
44K	128
48K	140
60K	175
72K	210
80K	230
96K	280

④ Power Supply	
115V,60H	A
220V,60Hz	B
208~230V,60Hz	C
200~220V,50Hz	D
220~240V,50Hz	E
220V,60Hz,3ø	F
380~415V,50Hz,3ø	G
127V,50Hz	M
220~240,50/60Hz,1ø	N
380V,60Hz,3ø	H

⑤ Indoor/Outdoor Unit		
common	Indoor	A
	Outdoor	X
Universal (DPM)	Indoor	M
	Outdoor	N

14-2 Pressure & Capacity mark

■ Power/Heat

W	cal/s	kcal/h	Btu/h	HP	kg · m/s	lb · m/s
1	0.23885	0.85985	3.4121	0.001341	0.10197	0.73756
4.1868	1	3.6	14.286	0.0056146	0.42693	3.088
1.163	0.27778	1	3.9683	0.0015596	0.11859	0.85778
0.29307	0.06999	0.252	1	3.9302×10^{-4}	0.029885	0.21616
745.7	178.11	641.19	2,544.4	1	76.04	550
9.8067	2.3423	8.4322	33.462	0.013151	1	7.233
1.3558	0.32383	1.1658	4.6262	0.0018182	0.13826	1

14-3 The abbreviated technology words & the definition of technology terms

abbreviated technology words	definition of technology terms
COMP (Full name: compressor)	One that compresses, especially a machine used to compress gases.
BLOWER	One that blows, especially a mechanical device, such as a fan, that produces a current of air.
FAN	A device for creating a current of air or a breeze.
ASSY CONTROL BOX (Full name : assemble control box)	A restraining device of air-condition, measure, or limit.
MOTOR	Something, such as a machine or an engine, that produces or imparts motion.
ASSY EVAP / ASSY COND (Full name : assemble evaporator / assemble condenser)	Heat exchanger; A device, used to transfer heat from a fluid on one side of a barrier to a fluid on the other side without bringingthe fluids into direct contact.

14-4 Installation

14-41 Before Installation

Keep the air conditioner outlet and inlet free from its surroundings.
In case of installation, keep the symmetry and fix it to prevent vibration.
The pipe length shall meet the standard as far as possible.

14-4-2 Installation Procedure

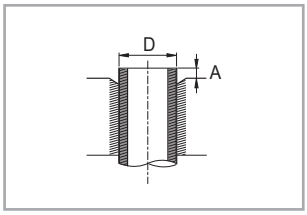
■ Location
Install the product in an area to guarantee the best cooling effect, convenience of piping and electric work, and inexistence of vibration or wind.

■ Fixing Indoor Unit & Outdoor Unit
Fix the air conditioner indoor unit securely to the ceiling. Secure the outdoor unit in a suitable position.

■ Pipe Spooling & Connecting
You shall cut the pipe with a pipe cutter and grind all the burrs of the cut surface.
Pipe expansion may continue until the pipe surface becomes uneven or torn apart.
Be sure to use a torque wrench to tighten pipes or flare nuts.

<Torque & Depth>

Outer Diameter(D)	Torque (kgf·cm)	Depth (A)
12.7mm(1/2")	380~420	2.0mm
19.05mm(3/4")	990~1210	2.2mm



■ Leak Test
Put an inert gas like nitrogen in the outdoor unit pipe and put soap bubbles or other test liquids on the pipe surface for the leak test.

■ Drain Hose Connecting
Install the drain hose downward to drain water naturally.

■ Testing Drainage
Pure water into the drain pan in the indoor unit, and confirm that the water flows out the drain hose.

■ Electric & Earth Work
Electric and earth work shall meet the "Electric Facility Technology Standard" and the "Internal Wire Regulation" of the Electric Business Laws.

■ Inspection & Trial Run
Upon completion of the tests, you shall make a trial run while you explain the main functions of the air conditioner to finish the installation.

SAMSUNG ELECTRONICS

GSPN (GLOBAL SERVICE PARTNER NETWORK)

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